BUILDING CONSTRUCTION

REGION FOUR

1933

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INDEX TO REGION FOUR BUILDING PLANS

OPERATION HANDBOOK
Region 4

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BUILDING PLANS

CONSTRUCTION AND IMPROVEMENT MAINTENANCE

General Uses for Which Buildings Are to be Constructed

In this Region buildings are usually designed and constructed for one of three general uses:

1. For housing the yearlong administrative force and equipment.

2. For housing the temporary administrative force and equipment.

3. For housing the fire protection force.

Buildings for the first use are as a rule the most pretentious designed and constructed by the Forest Service and are usually assembled in groups of three or more at headquarters stations. Buildings designed for the second use are less pretentious in appearance and are usually constructed at sites where only one or at most three buildings are needed. Buildings for the third use are designed purely for a special purpose, such as lookout houses or towers, and their location is determined entirely by the needs of the fire control organization.

Building Plans

As an index to the kind of plans available for use on the forest, a booklet containing a letter-size reproduction of the first page of each set of plans of each building will be supplied Supervisors. When it is desired to construct any kind of building, the necessary blueprints will be requisitioned from the Regional Office. In this way it will not be necessary for each Supervisor's office to maintain a voluminous file of blueprints, including plans, most of which may seldom be used on any one forest and some probably not at all. Each set of blueprints furnished will include a complete list of materials and instructions for erection. The lists of materials will be so prepared that they may be used in bid specifications, and they will comply with all fiscal requirements in the preparation of bids and vouchers. By this method it is hoped to secure uniformity in building construction practice throughout the Region, and also to relieve the field men of much labor and time in the preparation of plans and lists of materials and the purchasing of materials.

Building plans will be prepared on atlas-size tracings so that the blueprints may either be filed in atlas-binders or folded and put in the same type of binder as used for this report. The latter practice is permissible only in case it is necessary in order to keep all the papers together for one building.

Policy in Regard to Use of Standard Building Plans

Only standard plans sent you from the Regional Office will be used. And in every case the approved plans and specifications will be followed in detail without variation. Changes in floor plans, design, finish, etc., will not be made in the field except upon specific approval in writing by the Regional Forester. Recommendations for such changes must be supported by conclusive evidence as to why the change is necessary. The general design of nearly every plan has been approved by a representative committee of Forest Supervisors and the construction details worked out by experienced builders, and it is not considered necessary nor tending to efficiency that much time be spent in attempting to work out new details of design. If any errors in plans or lists of materials are found in the course of construction, they should be reported promptly to the Regional Office, so that corrections may be made.

Tie All Structures to a "Central Point"

A central point, which may be a suitable rock or a piece of iron pipe set or driven into the ground, will be established at some central position on the site and the bearing and distance of the nearest corner of each structure existing or proposed determined from this central point and recorded on the map of the site.

Records Required of Forests

1. Rough field map.

2. Descriptive sheet.

1. The Supervisor will make a rough field map on atlas-size sheets, of that part of every administrative site on which there are any administrative or protective buildings, or on which he proposes to construct any such buildings. This map will be made from an actual survey on the ground with compass and chain or tape, and it will be drawn strictly to scale (1" will equal either 25' or 50', and the legend will show the scale). The exact location of each building, fence, road, etc., will be shown by bearing and distance from the "central point" (see previous caption). Likewise, the suggested location of each proposed building and other improvement will be shown. Existing improvements will be shown with solid lines; proposed, with broken lines. Contour intervals of 5' should be used. All existing culture, such as trees, shrubs, buildings, fences, roads, telephone lines, will be shown. This rough map will be sent to the

Regional Office. When approved by the Regional Office a tracing and prints will be made. The tracing will be kept in the Regional Office. Two prints will be sent the Supervisor for his own and the District Ranger's records. As proposed buildings are completed, the broken lines on the prints will be made solid. If buildings are removed, erasures will be made to show this. Maps (prints) will be kept up to date. Please refer to sample improvement maps attached, which suggest the legend and general make-up desired.

2. Accompanying each map will be a descriptive sheet typed on atlas-size paper, which will contain a brief description of the site, its location, the history of its withdrawal for administrative use, the lawn, trees and other vegetation thereon, followed by a list of the existing buildings on the site, the dimensions of each, number of rooms in dwellings, year constructed and general condition. Following these a list of other improvements will be made. In addition there will be a list of the proposed new buildings and other proposed improvements and the type and Region 4 plan number of structure proposed for each. This write-up will include a plan for any needed improvement of the grounds: lawn, flowers, shrubbery, trees.

A photograph of a site and the improvements thereon may well be made a part of this descriptive sheet. When this sheet is approved by the Regional Office, it will be returned to the forest to be filed with the map.

Please endeavor to complete surveys, write-ups and records by March 31, 1936, for all sites with buildings, present and prospective. It is hoped you will complete this work for those sites where any buildings will be recommended for the fiscal year 1935, before your D-NF sheets have to be prepared next winter.

Employment of Men on General Improvement Work

Guards for improvement work.

Many guards are put on improvement work each spring before there is much fire hazard. Toward July 1 they are put at their stations at fire control work. When the fire season is ended, some of these guards are again put at improvement work. In many of these cases the guards are paid by the month throughout the season. All time of guards on road and trail work will be paid from road and trail funds.

Maintenance, policy of handling.

In at least one Region, contracting the maintenance of both telephone lines and trails has been tried with considerable success. Costs have been greatly reduced and satisfactory work done.

This Region is not prepared at this time to advocate a general policy of contracting maintenance of improvements, although forests may well try it out in a small way any time. It is believed, however, that it may eventually be advisable to adopt such a policy for a lot of this work. Particularly in the case of telephone and trail maintenance, it is difficult to give good supervision by the regular forest officers. The work is scattered over much territory and the forest officers have many other duties to perform besides supervision of this work. The chances of a lot of time being lost by temporary employees in travel, at camps and in other ways is great. Also savings may be possible by contracting construction of improvements.

Question of Employment by the Day on Improvement Work Raised.

It is suggested that men might be employed more generally by the day rather than by the month on improvement work. If, for example, a man who will be hired as a guard for fire control work on July 1, is hired to begin work June 10 in maintaining telephone lines, he might be hired by the day as a temporary laborer for the period prior to July 1, or until he is placed at his station for fire control duties. After this, he will be hired by the month, although he may be able to contribute some time to improvement work. Again, if at the end of the fire season he is put at improvement work, he might again be paid by the day as a temporary laborer.

We all want to make the dollar go as far as possible in the doing of improvement as well as other work. Some Supervisors believe it better business to hire men by the day rather than the month on at least some classes of improvements and are hiring them by the day. We are suggesting that the practice of hiring by the day on improvement work be made more general, but we are not making this mandatory at this time.

In the construction of the principal buildings, such as the better dwellings, large barns and equipment buildings, capable carpenters should be engaged, at least to the extent of supervising the construction. This will still permit of forest officers contributing their time on the buildings as far as other duties allow. It will be the carpenter's duty to assist you in securing the most economical use of all materials furnished, and in getting a workmanlike job done which will carry out all intents and purposes of the plans and specifications.

Constructing a Group of Buildings in One Season

Where it can be arranged, it will sometimes be good business to construct more than one, or all the buildings on a site, in one season. This may reduce cost of supervision as well as other costs of construction. On the other hand, when contributed time of guards is available each season, it may be advisable to go slower in completing a group of buildings in order to use more contributed time,

on the whole, and to do some building on each of several sites rather than a lot on one or two sites. This practice of scattering the work may allow the maximum use of contributed guard time.

Buying Materials

Considerable savings have been made by buying lumber and other building materials in carload lots. If money can be allotted for several buildings on a forest for the same year, it may be good business, since it will allow maximum purchases to be made at one time, and this should assure the minimum prices for materials. Where materials must come from a distance, special effort should be made to ship in carload lots and lower the freight rates.

Buying materials by the carload will not prove very satisfactory unless we see what we are buying before it is shipped us, or unless we buy on bids specifically mentioning acceptable grading rules, such as those laid down by the Western Pine Manufacturers' Association or the West Coast Lumbermen's Association. The bidder can be held to furnishing what we want if we follow this suggestion.

Sometimes it may be practical for two or more forests to combine so as to order in carload lots and save freight charges, unloading at the most convenient point and trucking from that point. But a carload of lumber is not a big amount and it should be practical generally for one forest to buy in such lots.

Reference is made to our circular, "O-Supervision, Purchasing and Warehousing" of 2/20/32, and particularly to the last paragraph, concerning the policy relative to when to buy locally. Please follow this policy in buying building materials.

Choice of Location for Buildings - Geographical

The discussion under this caption refers to the general location of an administrative site; not to a specific location, as a particular quarter section or section.

On what part of an administrative or protective unit should a site be chosen and a station built? There are several important considerations, and in giving attention to each of these, consider the future as well as the present and look ahead at least ten years. These remarks also apply when considering whether more or better buildings should be constructed on present sites now at least partly improved. Consider:

1. Volume of business and work on different parts of the unit; frequency of trips and length of stay necessary to and on each different part.

2. Trail and road system and a central point in this system, and ease with which different parts of the unit may be reached from a given point.

3. Of the practical places where a station might be established, which would be most accessible to and best meet the needs of the public; which best satisfy the private interests of the Forest officer and his family.

The tendency in choosing the location for a Ranger's headquarters is more and more toward settlements and towns or locations on highways. If Rangers are to accomplish the maximum, they must be easily accessible to the public.

Other Requisites Affecting Location

Following upon the determination of the general geographical location of the station, it is necessary to select from the sites available the one most satisfactory from the standpoint of appearance, natural setting, exposure, drainage, accessibility, fuel, shade, shelter, water and pasture. Locations likely to be hazardous from rolling or falling rocks or sliding snow will be avoided. As a rule, of course, our choice is somewhat limited to sites which have already been selected and at least partly improved. But there are some cases where we may to advantage abandon present sites for rangers' headquarters and scrap or move present buildings onto new sites. A case was recently considered of a ranger station we have used for many years, and it was agreed to move from an old site a half mile or so to get a much better site. It will probably be found in a number of cases that fire guards should be moved to other than present sites.

Where there is any choice, it is usually best to select a south exposure for the ranger station site, since such a site gives the maximum amount of sunshine, which is a very desirable factor, particularly for yearlong stations and for even summer stations at high altitudes. The site should be as level as possible in order to facilitate the most efficient arrangement and construction of the buildings, and yet should be selected to afford proper drainage for sanitation. Usually there is at least sufficient slope. There must be water for domestic purposes as handy as possible. Generally water for sprinkling and for irrigation is desirable. It will be well if the location is such as will allow use of modern plumbing by a gravity system. With relation to roads, especially heavily traveled highways, the site should be on the windward side, to minimize dust and noise.

Needs of future administration must be given the most careful consideration, particularly to the end that we may not soon find ourselves with unused and surplus buildings and abandoned sites, due to shifting work, to the enlarging of administrative and protective units, etc.

In selecting sites for protective guard stations, a site will be chosen which will allow the guard to function to the best advantage in fire control. With very few exceptions, the guard will

be of most value as a lookout-smokechaser. This will necessitate the choice of a site where the guard can be of value as a lookout, a site from which he can see considerable of the country within a 10 or 15-mile radius. The selection of proper sites for protective guards is of high importance. Engineering will help you decide the proper location for each guard as visibility surveys are made.

Number and Character of Buildings

Number of buildings needed.

Having finally fixed upon the site to be developed, it is next necessary to determine the number of buildings which the organization needs on the site under consideration. It is important to consider carefully what number of buildings will eventually be needed on the site. Otherwise, it will be impossible to say with any assurance where a building now to be constructed should be placed. With but two buildings on a site, a certain location for each is proper. With four buildings, that location for the two may be improper.

Log or frame.

At the same time it should be determined whether the buildings shall be of log or of frame construction. There are several points to consider in deciding this question.

1. The new building should conform to the principal buildings already on the site or close by (even those owned by others, as in case of a site in town).

2. Economy in cost of construction and maintenance is important and must be considered. Particularly when other things are nearly equal it should govern.

3. If the timber on the site or near is preponderantly conifer, a log building is the type; if broadleaf, a frame building is the proper one. If there is neither conifer nor broadleaf near nor plainly in view from the site, a frame building is the type.

In some parts of the Region it may be difficult to employ a man who can build a good log house, but in such a case the cost of building with logs is probably prohibitive in any event.

If logs are not the proper type for a building, Shevlin siding or similar siding should not be used. (Shevlin is a siding made to suggest logs.)

If logs are the proper type, Shevlin siding may be used only for smaller buildings, as toilet and woodshed. A further partial exception to the use of Shevlin siding will be noted in a plan for an individual log building when indented corners are used in the building construction. The Shevlin siding may also prove economical for gable ends when the body is of log construction.

Relative to one group of buildings, avoid the use of different designs in siding; make for uniformity. Where a start has been made with drop siding and the buildings are satisfactory, continue to use drop siding. If the buildings are of novelty rustic, continue to use novelty rustic for all new buildings, and so on.

Policy in Regard to Combination Buildings

Both for the sake of appearance and for economy in building construction and maintenance, it is desirable to build combination buildings. A garage and workshop can well be placed under the same roof. Likewise, an office and storeroom and bunkroom. A woodshed may well be built under the same roof as a garage. There are several feasible combinations listed in our building plans. Avoid a number of small buildings when it is practical to combine them. Combination buildings also are economical as to the amount of ground they occupy, and this is sometimes an important consideration where the amount of fairly level ground is limited.

Factors Controlling the Location of Buildings Relative to Each Other and to Roads

There are several factors which must be considered in determining upon the location of each building with reference to other improvements. The dwelling being the most important structure at each station, it is necessary that its location be chosen with extreme care. It should have the most advantageous location both from a practical, as well as an aesthetic point of view. It should occupy the most prominent position of all buildings on the site and should be the first building to catch the eye as one comes toward the site by the main approach.

The remainder of the structures in the building group will be made to serve as a frame or background for the dwelling. The dwelling will, as a rule, be located upon the highest part of the site so that all drainage will be away from it. In relation to the normal wind direction at the site, it should be located to windward of the barns, corrals and highway.

Where the site will permit, the dwelling will be located not less than 100 feet from the edge of right-of-way of the highway and usually not more than 200 feet. On main traveled roads particularly, it is well to get back from the dust and noise, and a dwelling will probably not look its best if much closer than 100 feet of a highway. Of course, in those cases where the station is located on or at the end of an approach road which is not traveled much by the public, this distance is not so important and may be waived if the site is restricted in area.

Normally a distance of at least 50 feet will be preserved between any building and the one next to it, with such exceptions as may be noted later on. This is a fire protection measure and

also insures that buildings will not be unnecessarily crowded together, shutting out light and detracting from the best possible appearance of the whole group. In the case of small buildings or where there is little hazard, or where a fire could be easily localized or confined in one building, the buildings may then be closer together than 50 feet if area of usable ground or appearance requires or when closer spacing will promote utility, as in case of cellars and woodsheds with reference to dwellings. Furthermore, the dwelling should, when at all possible, be so faced that the living room side of the building will have a southerly exposure, and at the same time give a view of the principal approach to the station from the living room windows. A spacing that is proper for small buildings will make larger buildings look crowded.

Grouping of Buildings and Their Arrangement Within the Group

When building space permits, the sides of any building will be parallel to the sides, or ends, of any other building in the group, but not on the same building line; that is, the side or end line prolonged of any building will not coincide with that of any other building.

Ease of approach, utility and general handiness are important in determining the location of each building in the group, as well as in deciding on the location and layout of the station driveway. For efficiency, the buildings must be so grouped that the "travel time" doing chores around the station is not excessive. The area of station driveway and walks to be maintained must also be kept within practical limits. Try to avoid a strungout appearance in the grouping of buildings. Other things being equal, centralize the grouping of the buildings which have the greater amount of use and push into the background those which have only occasional use. Quarters for temporary men should be so located as to obviate interference with the privacy of the ranger's family. For sanitary reasons, the barn will be at a considerable distance from the house, usually the farthest of all buildings.

It naturally follows that the woodshed will be located handy to the back door of the dwelling and not too far away; say not more than 25 or 30 feet, and it should be located so that it is screened as much as possible from the view of the visitor coming toward the house on the main approach, and at the same time so as to be easily reached for filling from trucks or wagons. Likewise, a cellar should be handy to the kitchen and a frost-proof and cold-storage room above ground should be built in a convenient location, in the absence of a basement. A garage for the forest officer's car should be fairly close by. The office should be handy for the forest officer, but also convenient to the public, and so located, if practical, as to draw the public to it and away from the dwelling.

Secondary to the dwelling, but of greater importance in the plan than most other buildings, is the Ranger's office building. Usually the office will occupy but a part of the building, and there will be one or more other rooms, to be used as storeroom, bunkroom, etc. The office will be so located that it will be readily accessible to the visiting public. Driveway, flagpole, hitching rack and parking space for cars will be so arranged that visitors having business with the ranger will naturally go to the office rather than to the dwelling.

Other buildings should be located secondary to the dwelling and office, and they should be grouped from a standpoint of appearance, natural setting, drainage and accessibility for use. The sample improvement plan maps indicate desirable grouping under certain conditions. These will help you to analyze your problems.

Suggestions for Improving Existing Groups

Where plans are being prepared for stations already considerably developed, consideration of replacements of existing structures should be given and be built into the plan. Many old buildings are not worthy of further expenditures for maintenance and their removal should be planned. Some are so unsatisfactory that an attempt should not be made to better or reconstruct them. Plan to tear down and build others. On those sites where a mistake in placement of a building has been made, consider fully the possibility of moving the structure, if it is worth preserving, to the proper location, in order that the group may be properly developed along the lines expressed in this policy statement. Consider very carefully before spending much money to better a building as much as 15 years old; or any building, in fact, cheaply constructed.

It should be said that the building limitation was once $500. It has several times been raised and is at present $2500 ($2250 now under the Economy Act, including plumbing). In the old days, satisfactory dwellings for rangers' headquarters could not be built because of the low building limitation. That accounts for some of our inadequate buildings, cheaply constructed, old and not worth spending more money on. Many replacements are in order as fast as finances permit. It is our responsibility to so plan as to build much better in the future than in the remote past or even ten years ago.

Orientation of Buildings

Buildings should be made to "square" either with the topography or the line of a nearby highway, rather than with the cardinal directions of the compass. On sites where the topography has a well-defined direction (a river nearby or the precipitous face of a nearby mountain, e.g.), buildings will square with the topography; but where there is no well-defined direction in which the topography trends, buildings will square with the adjacent highway. Also orientation

with the highway rather than the topography will be the rule if no clear directional trend of topography is evident except at a considerable distance. If a directional trend of the topography is not evident and there is no nearby highway or important road, then the buildings should square with the cardinal points of the compass.

Alternation of Roof Lines

Roof lines of different buildings should not all run in the same direction, but the buildings should present an alternation of roof lines and gables. There is a chance this instruction may in some cases cause conflict with utility of use, in which case let utility be the guiding factor in the determination.

Development of Grounds Surrounding the Dwelling.

Ranger Station Yard.

The dwelling will be surrounded by an appropriate lawn or yard enclosed by a yard fence. This lawn will be restricted to an area extending not more than 50 feet from the sides of the dwelling in any direction. A landscaping plan for the station providing for the planting of trees and shrubbery should be worked up and followed out if water and moisture conditions allow hope of successful planting. (See #2, under the caption, "Records Required of Forests.") Wherever possible, trees growing naturally on the grounds will be preserved. When new construction is undertaken at a station all trees and shrubs which it is desired to retain as a part of the landscaping plan should be carefully protected from all damage. Especially the front yard of a forest officer's dwelling and office should be kept presentable. It is the show place that the public sees as it passes or enters the station grounds, and this fact alone demands that it be kept in order. We expect the public to clean up their camps, and we should set a good example at our stations.

The area around the ranger's dwelling which is set aside for a lawn should be plowed, fertilized and leveled off before seeding with lawn grass. In most situations the commercial grades of lawn grass seed put out by the seed companies will prove satisfactory. Kentucky blue grass with white clover is good. When a lawn is laid out and seeded, adequate provision to flood or sprinkle it in some manner must be provided. Otherwise, we will have to be satisfied with native grasses, etc. In the latter case, it will usually be advisable to leave the yard unplowed. The lawn should in most cases be surrounded by a neat fence to protect it from trampling by loose stock or against other damage and for the sake of appearance. A satisfactory fence may be constructed of either woven wire, poles or boards, specifications for which are provided in Plan R4-65.

It has been said that the front of the dwelling should be not closer than 100 feet to the edge of the right-of-way for the highway. This policy will leave a considerable strip between the yard and

highway. The yard fence generally should be set back right against the lawn and the strip between the yard fence and the highway may be left open for car parking, etc.; that is, if it is no more than, say 100 to 150 feet wide.

Ranger Station Driveways.

They should generally not be more than 16 feet in width and should be graveled. When laid out on the station site, the edge of the driveway may be marked with a rock border neatly arranged. Suitable drainage for the driveway should be provided also. In some situations where the soil is of a gravelly character, it may not be necessary to do more than prepare a standard turnpike section with a grader.

Ranger Station Walks.

It will usually be desirable to construct walks between the dwelling, driveway, office and some other buildings. These may be concrete, 24 to 30 inches in width, or, where flat rocks are available, a very neat and attractive walk may be constructed by laying the rocks with their upper surface just level with the ground. The rock type sometimes will be more economical than concrete, and if a neat, workmanlike job is done will serve the purpose just as well. Where expense is an important factor, particularly relative to the longer walks, they may be built of gravel.

Kinds of Buildings, etc., Included in R-4 Standard Plans - Instructions For Choosing the Proper Plan for Your Needs.

Dwellings, Rangers' Headquarters.

For this type of structure, Plans R4-1, R4-2 and R4-1A will be used; the former at yearlong stations, the second at summer stations and the latter where a basement is impractical or where costs prohibit the inclusion of a basement under the house. In some locations where log construction is desirable and it is not possible to secure logs of the required length without excessive taper, an alternate plan somewhat similar to R4-1 may be used. It will be noted that if Plan R4-1 is used for log construction, it will require the making of eight corners, which will increase the log work materially; and this may be an additional reason for using the alternate plan, which will require only four corners and which gives practically the same floor arrangement as Plan R4-1. In fitting any building into its proper location on a building site, it should be noted that it is possible and proper to reverse the floor plan in order to secure the proper exposure for the living room side of the house.

Cheaper structures than R4-1, R4-2 or R4-1A should be built if the period the Ranger will occupy them each season is less than four months.

Guards' Dwellings

For dwellings at temporary stations, Plans R4-3, 4, 5, 6 and 7 will be used; and in exceptional cases, Plan R4-2 may be used if it appears that the character of use at the station demands a higher type of structure than is given by Plans 3, 4 and 5. But seldom should a building so expensive be constructed for the purpose mentioned and only when the period used each year will exceed four months.

Barns

For yearlong stations Plans R4-11 (4 horses), and R4-12 (6 horses) will be used; and at temporary stations Plans R-4-13 (2 horses) 2 types - A and B - and R4-14 (fly shed) will be used.

Garages

There are five different plans for garages:

R4-20 - two cars
R4-21 - two cars and storeroom
R4-22 - two cars, storeroom and shop
R4-23 - one car and storeroom, or woodshed, or shop, or guard quarters, etc.
R4-24 - one car garage or small storeroom

The individual requirements at each station will, of course, govern the choice of plan. Gasoline will seldom be stored in garages or other buildings with equipment. Where the volume of gasoline used is sufficient to justify it, underground tanks will be installed. Otherwise, gasoline will be stored, if at all practical, in a separate building removed from other structures.

Warehouses and Equipment Buildings.

R4-30 is a large type of equipment building which will be used at those stations where there is large road machinery, etc., for which shelter must be provided. The R4-30 type will be used instead of the old road machinery warehouse, plan for which was sent you early in 1932.

R4-31 is a smaller type of structure, usually 24'x32', intended for the same purpose as R4-30, but where the amount of storage space needed is not so large.

R4-32 is a combination building which may be used either as a storeroom, or as a storeroom and office.

R4-24 is designed as a garage but would be practical as a storeroom where small detached storage is desired.

R4-33 is a storeroom and shop combination.

R4-34 is a storeroom, garage and 2-horse barn.

Shops

In some situations it may be advisable to construct a separate building for blacksmith shop because of fire hazard, and for this purpose Plan R4-40 has been provided.

Offices

As a rule the ranger's office will be located in a building separate and apart from the ranger's dwelling. There are several good reasons why this should be so, and it is expected that there will be eventually but few exceptions to the rule. The ranger's office may be in a small building alone, but usually it will be in some building which has a combination of uses, as will be noted from the various plans provided.

R4-50 - Office 14'x16', or Plan R4-4.
R4-51 - Office and bedroom or storeroom.
R4-52 - Office, storeroom, kitchen and mess and bunk-house.
R4-53 - Office, storeroom and bedroom.
R4-54 - Same as R4-32.
R4-55 - Office, 3 rooms, modern

Miscellaneous buildings, etc.

R4-60 - Spring house.
R4-61 - Powder house. This structure generally will not be located nearer than 1/4 mile to any other structure, whether Forest Service or privately-owned, and the location will comply with State law.
R4-62 - Cellar, hillside type for use at stations where basement under the dwelling is neither practical nor advisable. R4-63 will usually be preferable to R4-62.
R4-63 - Cellar or cold storage. An above-ground structure to be used in most cases where a basement is impractical because of building limitations, drainage or any other reason.
R4-64 - Bulletin boards and checking stations.
R4-65 - Fences, gates, etc., for R.S. yards and pastures.
R4-66 - Woodshed.
R4-67 - Cattle guard.

Toilets.

R4-70 - Single, pit type for use at stations.

Fire Control Structures Used for Detection Purposes.

R4-80 - Lookout houses (standard).
R4-81 - Patrol shelter and tower cupola.
R4-82 - Lookout towers in 10' units from 10 to 50 feet in height to be used where elevation of the standard R4-80 lookout house is necessary.
R4-83 - Lookout towers up to 60' with R4-81 as shelter for the lookout man.
R4-84 - Lookout towers of light construction with a platform only.

Equipment.

R4-90 - Mess wagon.
R4-91 - Trailer plan.
R4-92 - Fire tool cache.
R4-93 - Water troughs.
R4-94 - Cisterns.
R4-95 - Gasoline and oil house.

Types of Construction, Specifications, etc.

Foundations.

For yearlong dwellings, foundations will be solid and of concrete or of rock masonry. Ventilation will be provided with standard cast iron ventilators where foundations are solid. In buildings with basements the windows provided in the plans will, of course, afford proper ventilation except for any space under the house and entirely shut off from the basement. For summer stations and for buildings where warmth is not an important consideration, concrete or rock pillars are satisfactory, but solid concrete may be used if the cost is reasonable. In no case will lumber or logs of buildings be allowed to come into contact with the ground.

Flues.

Where transportation facilities make it feasible, flues will be of brick; otherwise, a double metal flue will be used, similar to the Jackson flue.

Modern Plumbing.

This will be the standard for all Ranger district headquarters. If a gravity water system is impractical, a gas or electric pump will be considered. In some warehouses and workshops it will be desirable to provide for hot water and a basin for lavatory purposes. Also toilet facilities should be provided. Cost of plumbing within a building will be charged against the $2500 building limitation.

Plaster.

For yearlong dwellings, lime plaster will be used where at all practical. Otherwise, a good quality of composition board may be used to line dwellings (see "Acceptable Wall Boards").

Basements.

Where dry basements are practical, yearlong dwellings will have concrete basements if building limitations do not preclude, and if such limitations allow, the basements will be full basements. (See "Frost-proof rooms.") Where the building limitations will permit, a basement at least sufficient for a furnace will be provided and a furnace may be installed at yearlong stations. At any station, even summer stations, where much cold storage or frost-proof space is needed, consideration should be given to the practicability of a basement.

In the event that properly mixed and properly proportioned concrete will not keep out water, then no further money will be expended to make a basement waterproof, unless approval is granted by the Regional Office. Should such approval be granted, detailed instructions for water-proofing will be given you by the Regional Office. Ordinarily, if the ground is wet, frost-proof and cold storage will be provided above-ground and a basement made no larger than needed for a furnace and a little fuel, and no basement provided if no furnace is desirable.

Insulation.

Where dwellings are used in the winter, the interior heat melts the snow from the eaves up. Water runs down and in cold weather freezes as it reaches the eaves. An accumulation of ice backs the water above the eaves, often sufficiently to result in the formation of ice under the shingles. Finally, water gets through the roof and often causes a lot of trouble. This condition can be remedied by putting a strip or strips of tar sheathing paper under the shingles, running it parallel with the eaves, its lower edge at the upper edge of the eaves, flush with the outside wall of the house.

This use of a strip of tar paper at least 42" wide for yearlong dwellings, where there is a foot or more of snowfall, will be standard practice. The sheathing under this tar paper will be laid solid and will be of 1" matched lumber or 1" shiplap, since ordinary sheathing varies in thickness and would make a poor base for the paper.

Sawdust may be used for insulation over ceilings. The plan recommended is to take clean, dry sawdust and fill between the ceiling joists to a depth of 3 inches, leveling the material carefully. If the house is wired, all wires will be protected with a wrapping

of sheet asbestos. After the sawdust is placed as specified above, one pound of baking soda (bicarbonate of soda) should be sifted over every 10 sq. ft. of exposed sawdust. This will, to some extent, fireproof the sawdust.

Electric Wiring for Lights where practical.

Where commercial electric power or light service is available or can be made available at very little cost, our dwellings should be wired for lights, wiring to conform to the National Electrical Code and the regulations of the National Board of Fire Underwriters insofar as possible. Where buildings are constructed in towns, consideration should also be given to local building codes re electric wiring, building materials, etc.

Acceptable wall boards.

The following wall boards are wood or by-products thereof, and are considered acceptable as lining for buildings:

1/2" Firtex
1/2" Masonite
3-ply wood wall boards of the various trade names - "Ply-wood," "Fir-board," etc.

Roofs.

Generally the roof of any building 20 feet wide or over will be built with a one-half pitch, which is a 45-degree slope. This standard will apply also to the roof of any building however narrow where snowfall is likely to pile up on the ground as deep as four feet in the extreme.

Roofs of buildings narrower than 20 feet and not coming under the exception noted above as to snowfall will be one-third pitch.

These standards are adopted because we wish our roofs to give adequate service at a minimum expense, and also because we feel that a wide building looks squatty unless the pitch of the roof is fairly steep. This is not so with a narrow building. There the one-third pitch seems to harmonize or balance better than any steeper pitch. We do not deem it essential or necessary that all buildings in a group have roofs with the same pitch. Our standard plans allow roofs with but two different degrees of slope; that is, a one-third and a one-half pitch.

Roofs will be covered with wooden shingles of 16" lengths, Perfects 5X, 4½" to the weather; unless transportation is very expensive and good shakes can be obtained nearby and at a considerable saving in cost, in which case hand-made shakes will be used.

The shingles of roofs will be painted at 3 to 5-year intervals and maintained properly.

Frost-proof Rooms.

Where practical, considering ground water and the building limitations, basements under buildings will be provided where frost-proof storage is needed. Otherwise, frost-proof rooms will be built, generally above ground. A double wall, with 18 to 24 inches of sawdust between and piled over the ceiling should suffice. With at least one log wall, there should be 18" in the clear for sawdust. In wholly frame construction, 24" of space should be provided between the walls for sawdust. In all cases, put 24" of sawdust over the ceiling. Such construction has been used in Region 1 and is satisfactory. Sawdust is more efficient loose. Therefore, it should not be tamped or packed in. Sawdust will be added as needed to make up for any settling. Region 4 is still very short of space in frost-proof rooms. This situation should be remedied as soon as possible. The cost of building frost-proof rooms above ground is not prohibitive.

Rodent-proof Rooms.

Storerooms, saddle and grain rooms and receptacles, and in general any rooms and receptacles will be made rodent-proof in which grain, provisions, materials and equipment subject to damage by rodents will be stored. This will be done with galvanized wire netting, such as is used for screen windows and doors. When building a room, the wire netting should be placed on the studding or joist. Walls and ceilings of rooms already built can easily be rodent-proofed by placing the wire over the walls and ceiling. Prompt steps should be taken to make this policy effective in all cases where rodents are still doing a material amount of damage to our provisions, equipment, grain, etc.

Particularly where pack rats are numerous, consideration should be given to keeping them out of attics, mows, etc.

Standard Color Scheme

Frame Buildings.

White for body, window and door frames.

Nile green for window sash and doors.

Roof, boiled linseed oil, each gallon of oil to have 2 pounds graphite and two pounds C.P.C. green, light.

Interior walls, light tan or buff, gray or Colonial ivory, of eggshell finish. Floors, varnished or waxed or, to the extent allowed in the "O" handbook, covered with linoleum. Woodwork natural, covered with clear spar varnish. Where wood-work has been colored, the future color will be French gray, light brown, Colonial ivory or gloss white, using enamel paint.

Porches: White ceiling, or if new, covered with clear spar varnish; floors, dust color or light pearl.

Log Buildings.

Logs covered with mixture as follows: 4 gallons raw linseed oil, 1 gallon spar varnish, 1# can burnt umber ground in oil.

For balance of building, same colors as for frame buildings.

Lookout Buildings.

Interior, to be stained dark green (boiled oil and C.P.C. green). Otherwise, regular color scheme as above.

Yard Fence.

White. Not all yard fences should be painted. Where the station will be seen at close range by many people, painting of posts and any other wood is worth while.

Flag pole.

White.

Specifications will call for a higher quality of paint than has been used in the past. The paint and oil will be purchased by the Regional Office, in order to get better prices by quantity purchases and so as to make it practical to have the ingredients analyzed by the Bureau of Standards to help assure that we get what we want, order and pay for.

Some exceptions to standard color scheme.

Suppose we have one or more old buildings on a site painted under the old color scheme and the paint is still in pretty good shape. We put up a new building on the same site. Shall we use the new or the old color scheme on the new building? Use the new, unless you prefer to let the walls of the new building go unpainted until the other buildings are ready to repaint, and then paint all by the new color scheme. In such a case the new building can be given a coat of linseed oil to preserve the wood in the meantime, if you consider that desirable.

The principal buildings on a site may be log, but there may be some minor frame buildings; or vice versa. In either case, use the new color scheme for the log buildings except as noted below. If the principal buildings are log, use the old color scheme for the bodies of the frame buildings. If the principal buildings are frame, use the new color scheme for the bodies of the frame buildings.

In the case of a big old or dilapidated building, such as a barn, no paint at all is sometimes the answer. White paint will not look well generally on such buildings. It will seldom be satisfactory on unsurfaced lumber or on lumber that has weathered for several years before being painted. If it is desirable to paint a barn of much-weathered or unsurfaced lumber, with white paint, the outside should first be covered with surfaced siding of some kind.

In case of log buildings where logs have been painted, any repainting of the logs of such buildings should be with the old color -- brown. The new formula for logs can not be used to advantage over the old paint.

You will plan soon on what buildings you should have on each of your administrative sites. You can determine the type of construction (wood or frame) for new buildings, and plan on your color scheme accordingly, endeavoring to keep as much harmony among colors on different buildings as is practical until your building plan for the site has been completed and the color scheme has been brought fully up to the new standard.

With reference to the inside of houses and relative to the roofs and outside trimmings of all buildings and relative to porch floors and ceilings and to doors, the new color scheme should be used 100 per cent as soon as any painting of the surfaces mentioned is done, regardless of the intermingling of log and frame buildings or of old and new buildings.

Lumber Grades Recommended for Use in Building Construction in Region 4

	Grades Recommended under Standard Grading Rules of:	
	Western Pine Manufacturers' Ass'n	West Coast Lumbermen's Ass'n
All 2" or thicker dimension for all classes of buildings	#1 Dim. F/L, S4S	#1 Com. D.F. or West Coast Hemlock S4S.
Wall sheathing and false floors in dwellings.	#3 Com. Pine S4S	#2 Com. boards D.F. or W.C. Hemlock
1 x 8 shiplap or plain sheathing or any width		
6" (Drop Siding, Bevel Siding, Channel Siding, Novelty Siding	(#2 Select Com. (Pine or C-Siding	"C" F.G. or V.G. Drop siding D.F.
6" bevel siding	"C" select siding pine	"B" bevel siding D.F.
Log Siding, 2" x 8"	#1 Com. or #2 Com. for less important buildings. (Pine)	#1 Com. or #2 Com. for less important buildings (Douglas Fir)
4" flooring dwellings	-	"B" V.G. flooring D.F.
4" flooring warehouses, and such	-	"C" " " "
Lath	#1 pine lath	#1 Fir or Cedar
For all kinds of finish and trim in dwellings and offices. Pattern stock or plain	C select pine S4S	"C" Select F.G. or V.G. Finish D.F. S4S.
Same for warehouses, guard dwellings, etc.	#2 Com. Pine S4S	Selected Com. Boards D.F. S4S
Trim for exterior of all buildings.	D select Pine S4S	
Shingles, cedar #1-16" (Perfects 5X) At 4½" to weather, 4 bundles will cover 92 sq. ft.		
Floors (Plank type) for barns and warehouses.		3" bridge planks D.F. or 2" car decking - B or better - Douglas Fir (T&G - CM)
In General:		

All lumber must be to grade specified.
All lumber must be properly seasoned and dry. (Up to and including 2" thick.)

Miscellaneous Matters

After careful study, it is decided that a barn for six horses with stalls all side by side is not as economical to build as a center-aisle barn; in fact, a saving of up to $150 is possible in the center-aisle type, because this type needs only 640 sq. ft. of floor space as against 880 feet for the other. Ample space through the center will be provided to prevent horses tied at different ends of the barn injuring each other.

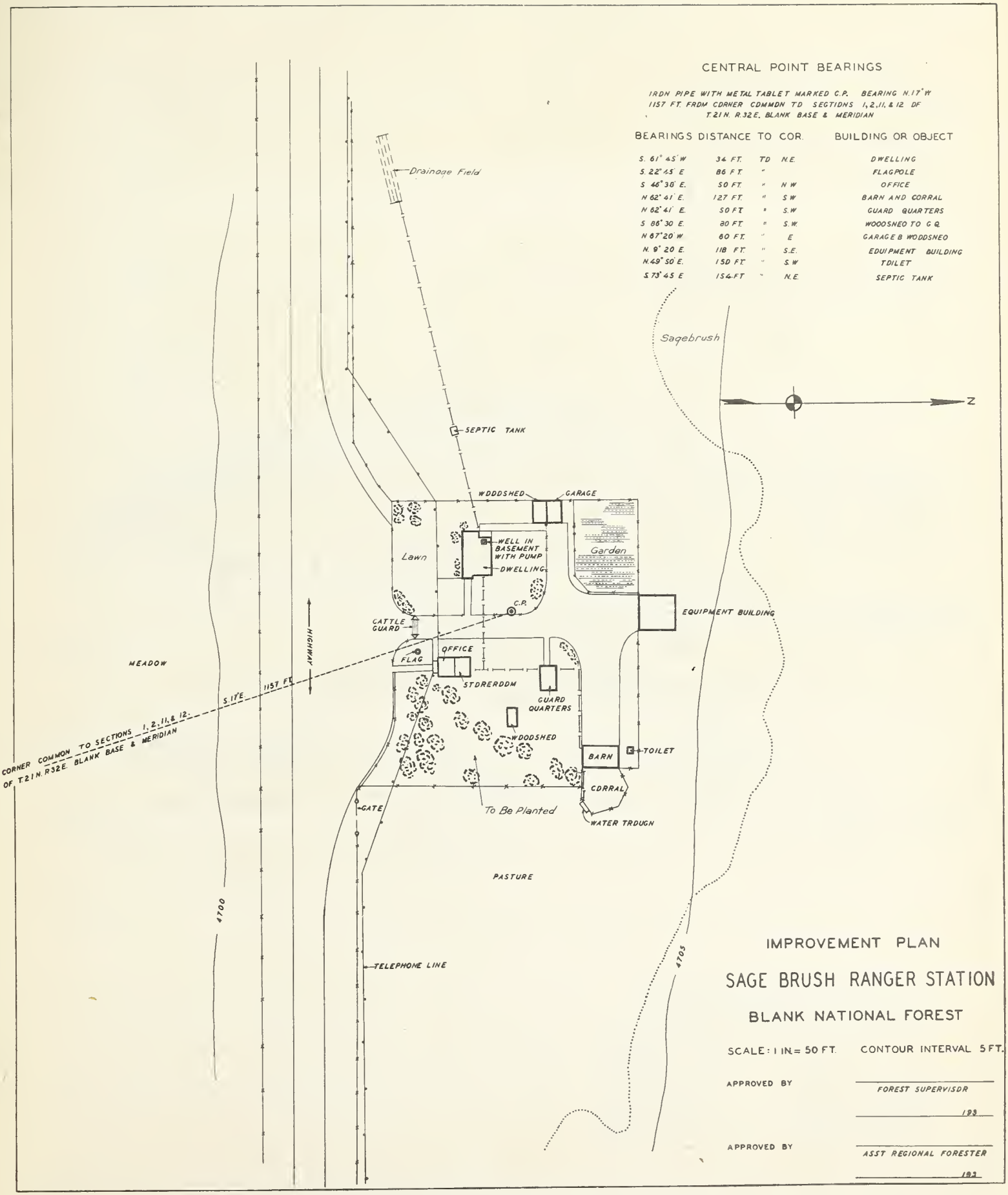
A building or two recommended by the committee has been cut out. One building recommended was found to be very near to another that was recommended. Another was considered as likely to be needed only in exceptional cases. Such buildings were, therefore, dropped from the list. It is a long list as it now stands. It may prove necessary to change the plan agreed on with the Committee for Ranger headquarters dwellings in order to keep within the $2,500 limit. A recent ruling makes it necessary to charge inside plumbing to that limit as a part of the house.

In accordance with the wishes of the Forester, you are instructed not to use wood substitutes where wood can be used to equal, or slightly less than equal, advantage. The desirability of the use of wood in the construction of improvements by an organization whose business is largely concerned with growing wood is, of course, evident.

With your cooperation, the results that will be obtained from this effort toward standardization of buildings will give us more utility of use, better grouping and building appearances, greatly decreased costs of design and, on the whole, better buildings.

C. M. Rutledge

Regional Forester.


CENTRAL POINT BEARINGS
IRON PIPE WITH METAL TABLET MARKED C.P. BEARING N.17°W
1157 FT. FROM CORNER COMMON TO SECTIONS 1, 2, 11, & 12 OF
T.21N. R.32E. BLANK BASE & MERIDIAN
BEARINGS DISTANCE TO COR. BUILDING OR OBJECT
S. 61° 45' W 34 FT. TO N.E. DWELLING
S. 22° 45' E 86 FT. " FLAGPOLE
S 46° 30' E. 50 FT. " N.W OFFICE
N 62° 41' E. 127 FT. " S.W BARN AND CORRAL
N 62° 41' E. 50 FT. " S.W GUARD QUARTERS
S 86° 30 E. 20 FT. " S.W. WOODSHED TO G.Q.
N 87° 20' W. 60 FT. " E GARAGE & WOODSHED
N. 9° 20 E. 118 FT. " S.E. EQUIPMENT BUILDING
N.49° 50' E. 150 FT. " S.W TOILET
S 73° 45 E 154 FT. " N.E. SEPTIC TANK
Drainage Field
Sagebrush
N
SEPTIC TANK
WOODSHED
GARAGE
Lawn
WELL IN BASEMENT WITH PUMP
DWELLING
Garden
C.P.
EQUIPMENT BUILDING
CATTLE GUARD
HIGHWAY
MEADOW
FLAG
OFFICE
STORERROOM
GUARD QUARTERS
WOODSHED
BARN
TOILET
CORRAL
GATE
To Be Planted
WATER TROUGH
PASTURE
S.17°E. 1157 FT.
CORNER COMMON TO SECTIONS 1, 2, 11, & 12 OF T.21N. R.32E. BLANK BASE & MERIDIAN
4700
4705
TELEPHONE LINE
IMPROVEMENT PLAN
SAGE BRUSH RANGER STATION
BLANK NATIONAL FOREST
SCALE: 1 IN. = 50 FT. CONTOUR INTERVAL 5 FT.
APPROVED BY
FOREST SUPERVISOR
193
APPROVED BY
ASST REGIONAL FORESTER
193

IMPROVEMENT PLAN

WILLOW CREEK RANGER STATION

BLANK NATIONAL FOREST

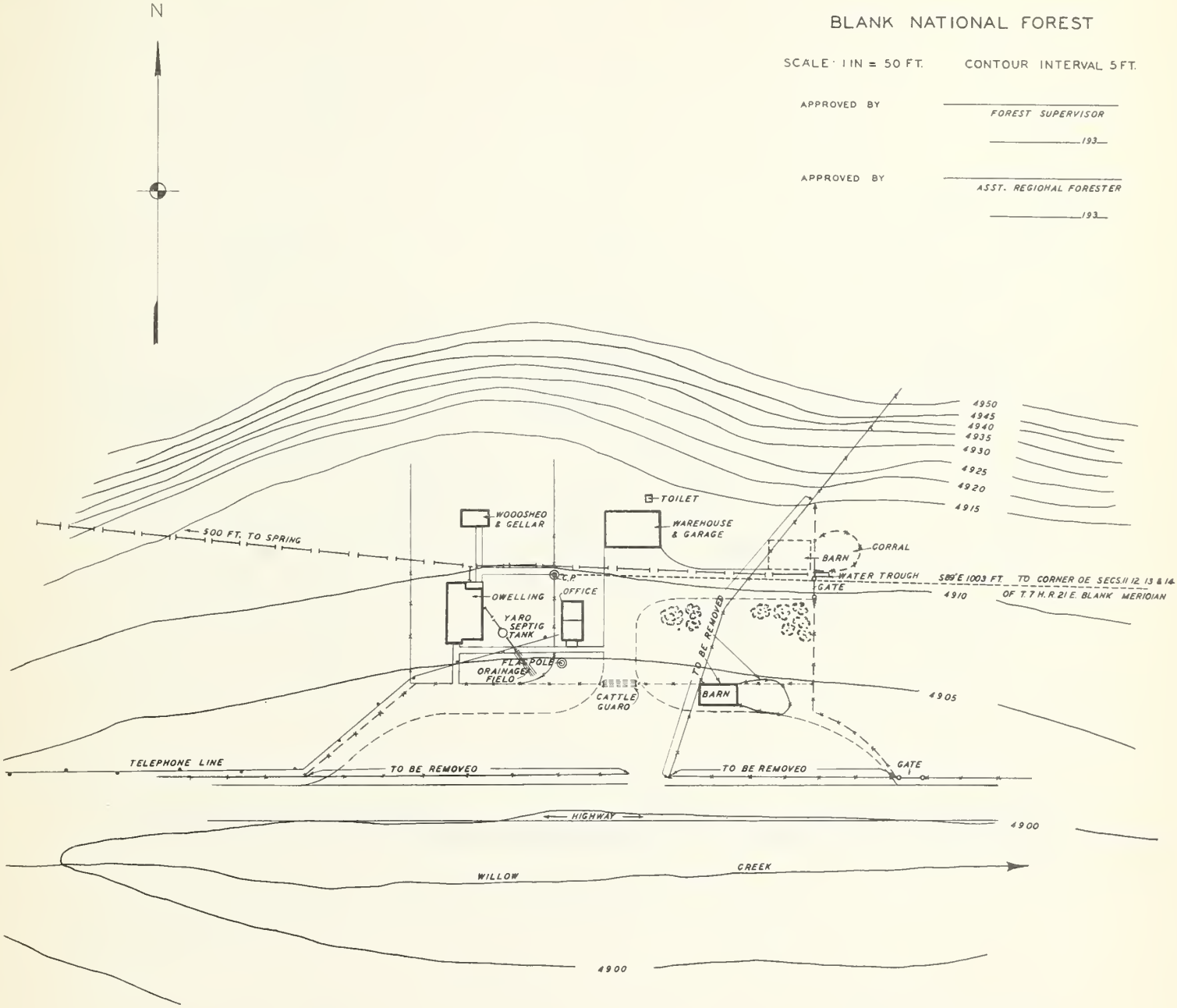
SCALE · 1 IN = 50 FT. CONTOUR INTERVAL 5 FT.

APPROVED BY _____ FOREST SUPERVISOR

_____ 193_

APPROVED BY _____ ASST. REGIONAL FORESTER

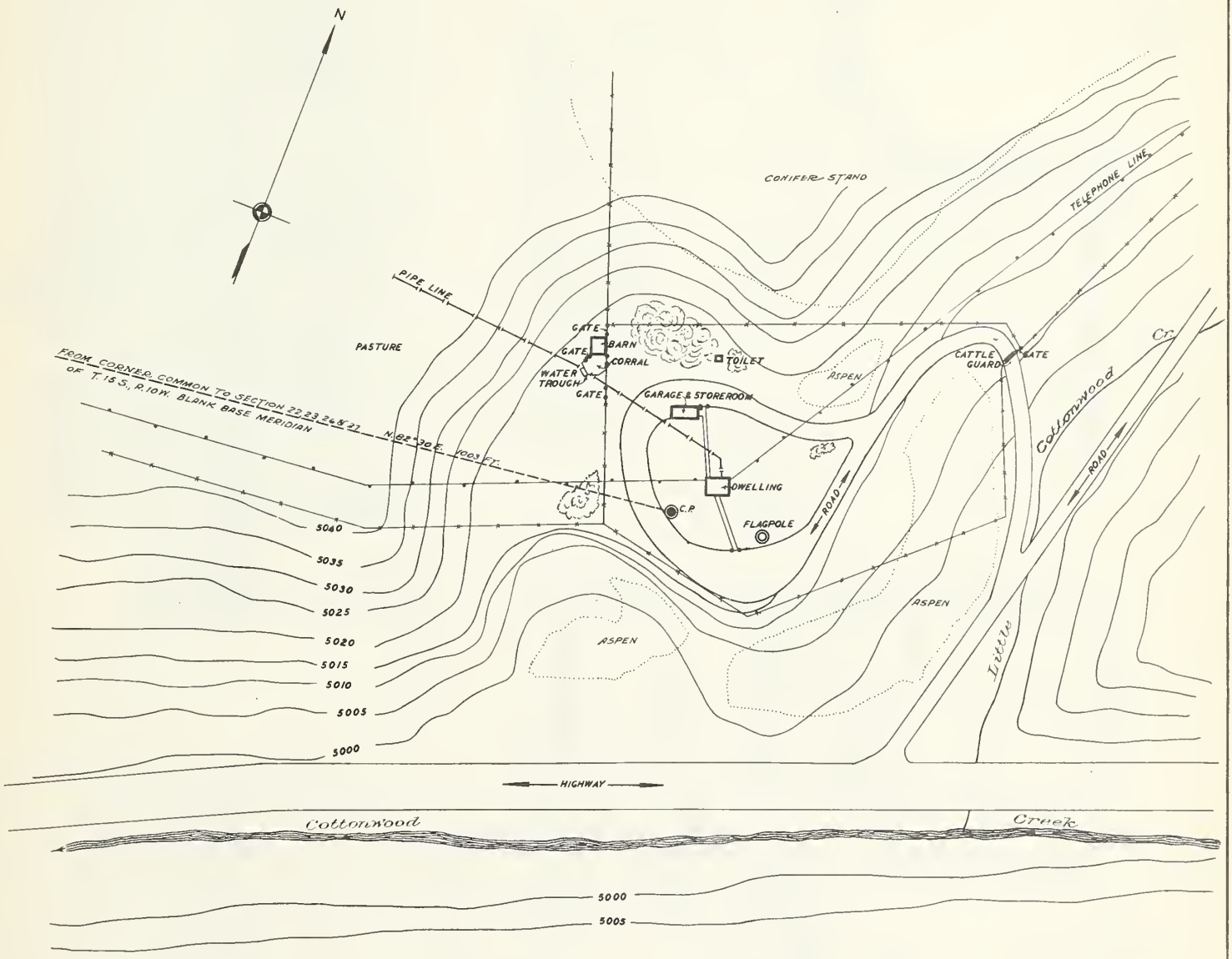
_____ 193_



CENTRAL POINT BEARINGS

CENTRAL POINT IS AN IRON PIPE WITH FOREST SERVICE METAL TABLET IN TOP SET FLUSH WITH GRADE AND MARKED C.P. + ELEVATION 4909 FT.

BEARING & DISTANCE TO			COR.	BUILDING OR OBJECT
S. 84° 30' W.	50 FT.	"	N.E.	OWELLING
S. 4° 25' E.	62 FT.	"		FLAGPOLE
S. 15° 25' E.	18 FT.	"	N.W.	OFFICE
S. 53° 10' E.	126 FT.	"	N.W.	OLD BARN-TO BE REMOVED
N. 81° 8' E.	151 FT.	"	N.W.	PROPOSED BARN AND CORRAL
N. 62° 30' E.	40 FT.	"	S.W.	WAREHOUSE AND GARAGE
N. 52° 00' E	80 FT.	"	S.W.	TOILET
N. 53° 54' W.	53 FT.	"	S.E.	WOOOSHED AND CELLAR



CENTRAL POINT BEARINGS

IRON PIPE WITH METAL TABLET MARKED C.P.+ BEARING N.82° 30'E. 1003 FT. FROM CORNER COMMON TO SECTIONS 22, 23, 26, 27 OF T.15S., R.10W. BLANK BASE & MERIDIAN

BEARING	DISTANCE TO COR.			BUILDING OR OBJECT
N 44° 25' E.	23 FT.	"	S.W.	OWELLING
N 83° 30' E.	61 FT.	"		FLAGPOLE
N. 46° 20' W.	112 FT.	"	S.E.	BARN & CORRAL
N. 22° 05' W.	61 FT.	"	S.W.	GARAGE & STOREROOM
N. 5° 05' W.	101 FT.	"	S.W.	TOILET

IMPROVEMENT PLAN

COTTONWOOD GUARD STATION

BLANK NATIONAL FOREST

SCALE 1 IN. = 50 FT. CONTOUR INTERVAL 5 FT.

APPROVED BY _____ FOREST SUPERVISOR

_____ 193__

APPROVED BY _____ ASST. REGIONAL FORESTER

_____ 193__

DOOR SCHEDULE

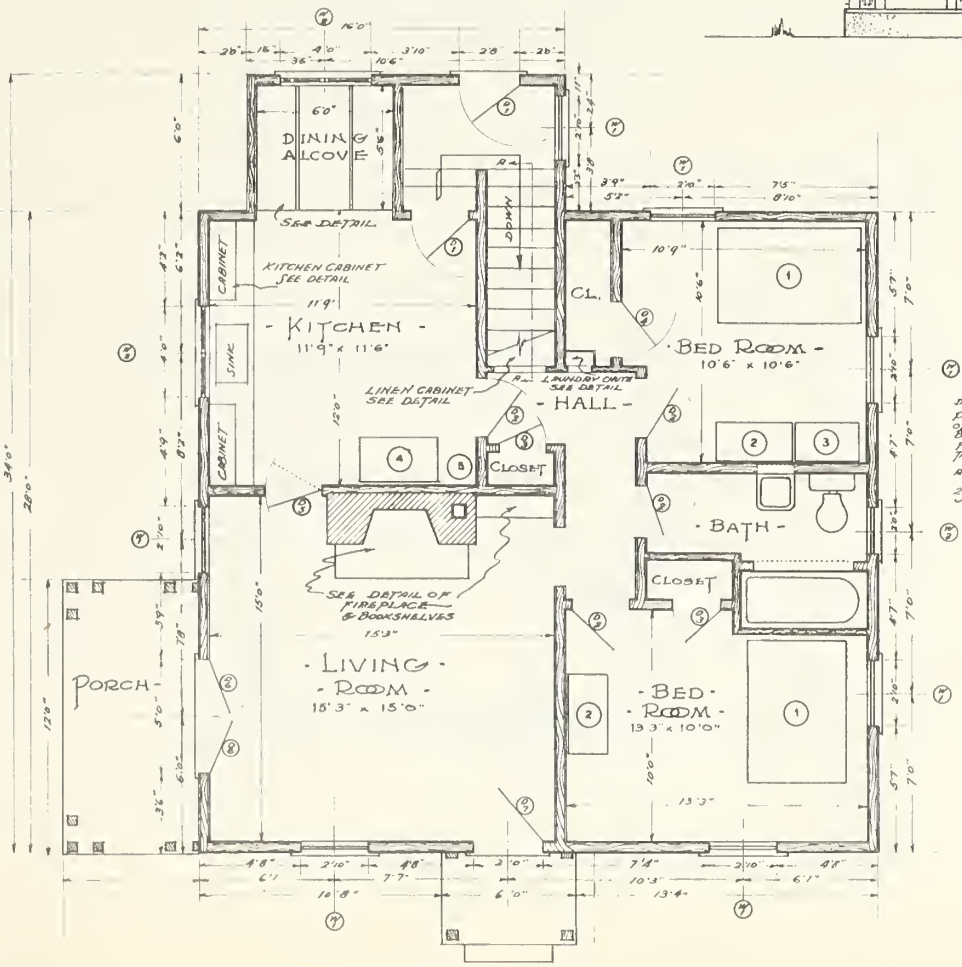
	UNIVERSAL DESIGN NO.	MATERIAL	SIZE	GLASS	REMARKS
(1)	U-274	FIR OR PINE	2'-8" x 6'-8" x 1 3/8"	O.S.	
(2)	U-431	FIR OR PINE	2'-6" x 6'-6" x 1 3/8"	—	
(3)	U-431	FIR OR PINE	2'-0" x 6'-6" x 1 3/8"	—	
(4)	U-431	FIR OR PINE	2'-4" x 6'-6" x 1 3/8"	—	
(5)	U-431	FIR OR PINE	2'-6" x 6'-6" x 1 3/8"	—	DOUBLE ACTING
(6)	U-500	FIR OR PINE	2'-6" x 6'-6" x 1 3/8"	O.S.	
(7)	U-130 (SHOWN IN PLANS)	FIR OR PINE	3'-0" x 7'-0" x 1 3/8"	O.S.	FURNISH ONE AS SPECIFIED
	U-183	FIR OR PINE	3'-0" x 7'-0" x 1 3/8	O.S.	

WINDOW SCHEDULE

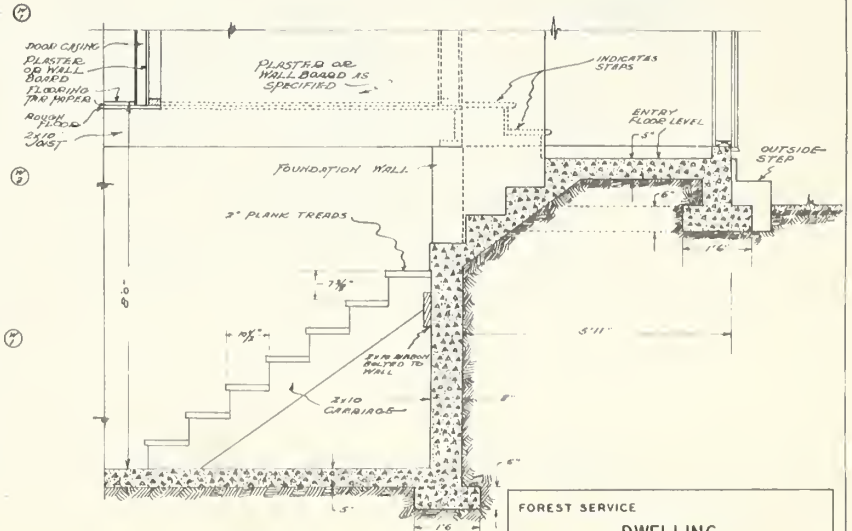
	UNIVERSAL DESIGN NO.	SIZE OF EACH LIGHT	SIZE OF OPENING	TYPE OF WINDOW	REMARKS
(1)	U-1012	10 x 12	3'-10 1/8" x 4'-6"	D.H. 12 LT. CK RAIL	1 3/8" THICK.
(2)	U-1116	10 x 12	3'-11 1/8" x 3'-5 1/8"	CASEMENT SASH, 6 LT.	1 3/8" THICK. RABBET SASH ON MEETING RAILS.
(3)	U-1008	10 x 12	2'-0 1/8" x 4'-6"	D.H. 8 LT. PLAIN RAIL	1 3/8" THICK.

- FRONT ELEVATION -

KEY TO FURNITURE & EQUIPMENT SHOWN	
(1)	BED - STANDARD SIZE - BOTH BED ROOMS
(2)	DRESSING TABLE OR BUREAU -
(3)	CHIFFONIER -
(4)	KITCHEN RANGE --
(5)	RANGE BOILER -



- FLOOR PLAN -



- DETAIL - OF - BASEMENT STAIRWAY - AT A·A

- SCALE ½" = 1 FOOT -

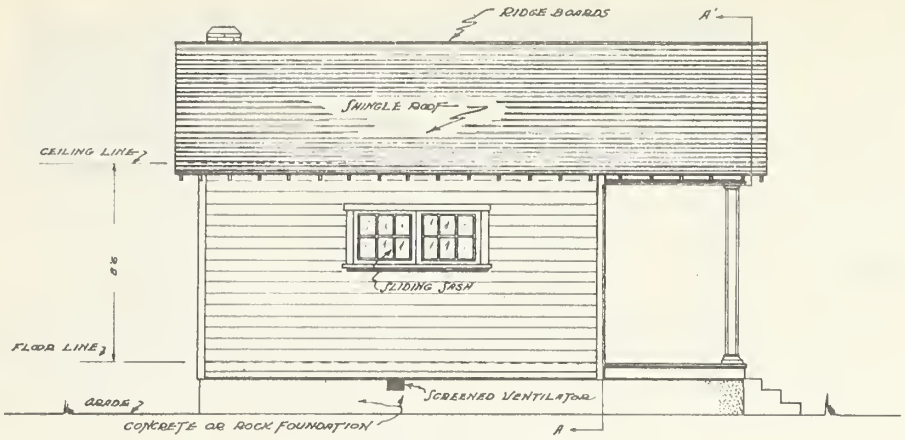
FOREST SERVICE

DWELLING
RANGER STATION

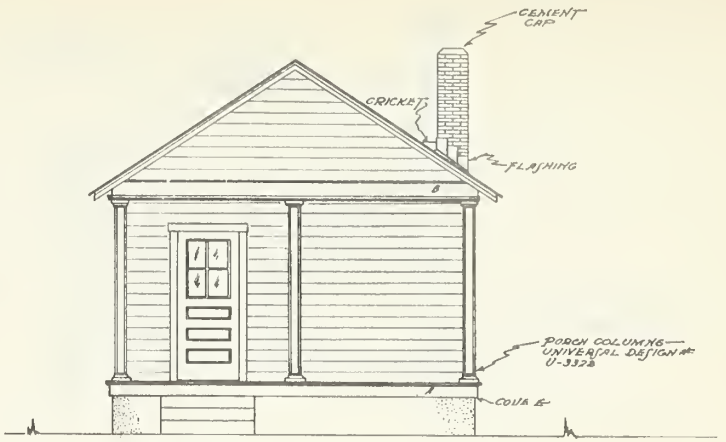
PLAN R-4 # 1

SHEET 1 OF

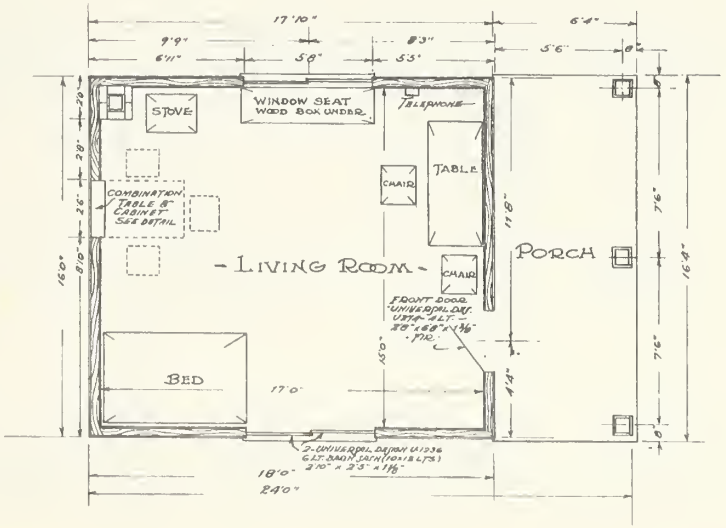
	DATE	SCALE
CHECKED O.L.N	3-13-33	¼" = 1 FOOT EXCEPT AS SHOWN
APPROVED C.N.W	3-15-33	



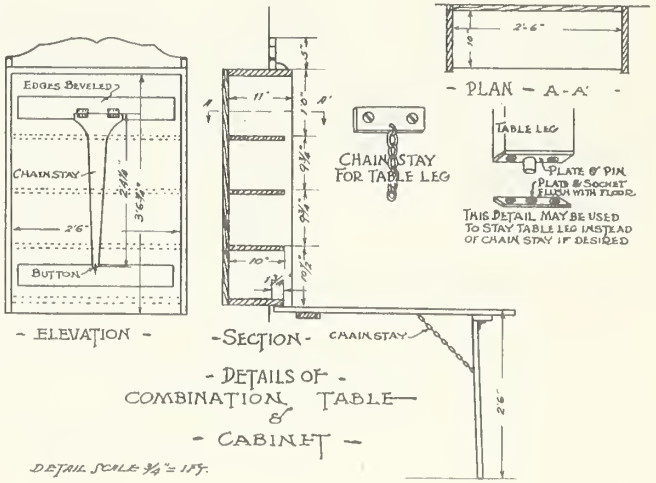
- SIDE ELEVATION -



- FRONT ELEVATION -



- FLOOR PLAN -



- DETAILS OF - COMBINATION TABLE & - CABINET -

DETAIL SCALE 3/4" = 1 FT.

FOREST SERVICE

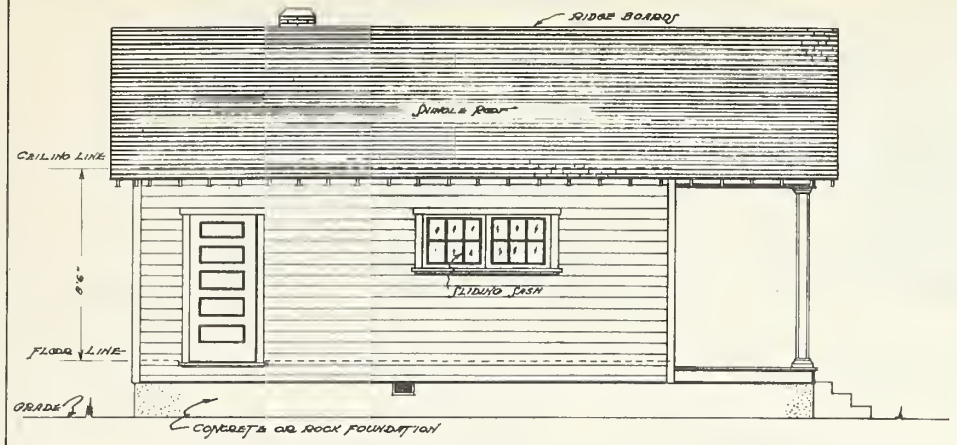
DWELLING - GUARD STATION

ONE ROOM

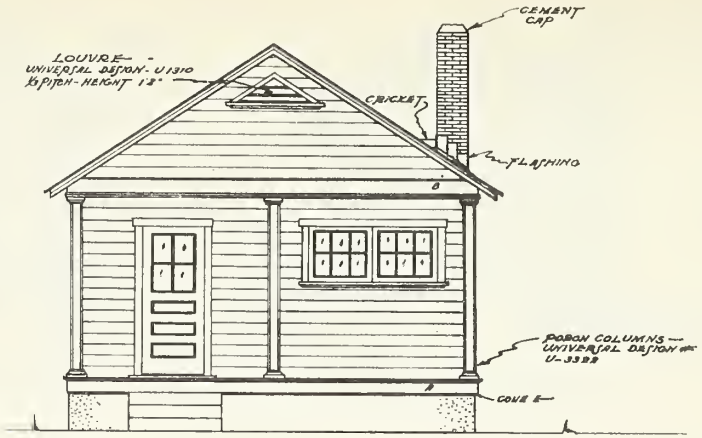
PLAN R-4 # 4

SHEET 1 OF

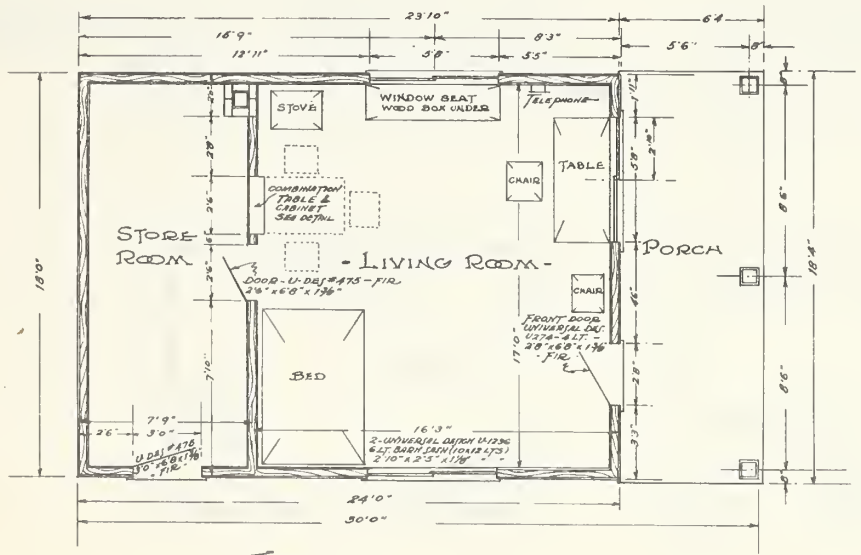
	DATE	SCALE
CHECKED C.L.H.	7-25-39	ELEVATIONS & PLAN 1/4" = 1 FOOT
APPROVED N.W.D.	8-10-39	DETAILS AS SHOWN



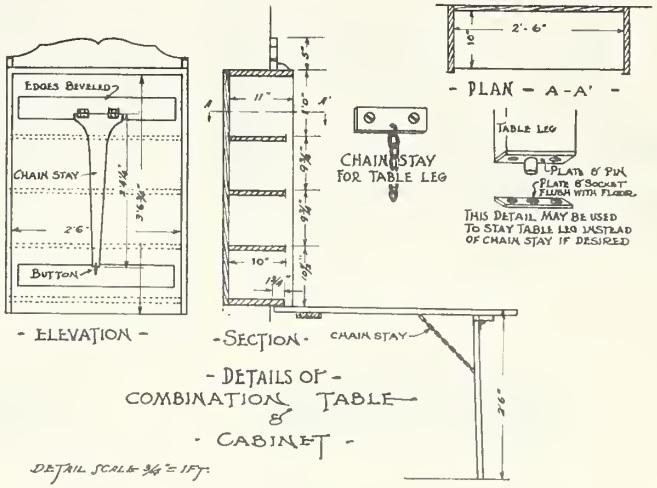
- SIDE ELEVATION -



- FRONT ELEVATION -



- FLOOR PLAN -



FOREST SERVICE

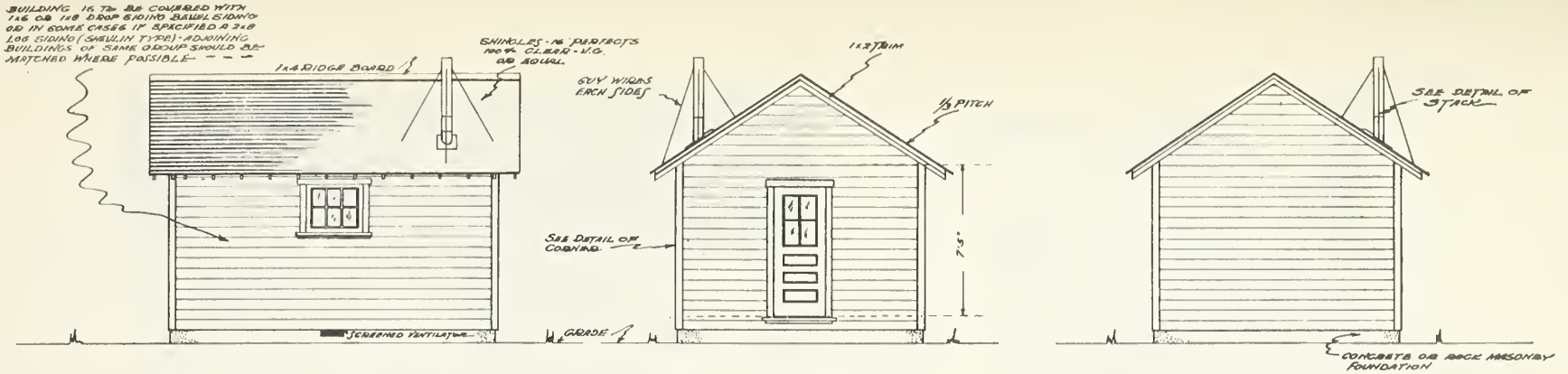
DWELLING - GUARD STATION

ONE ROOM & STOREROOM

PLAN R-4 # 5

SHEET 1 OF

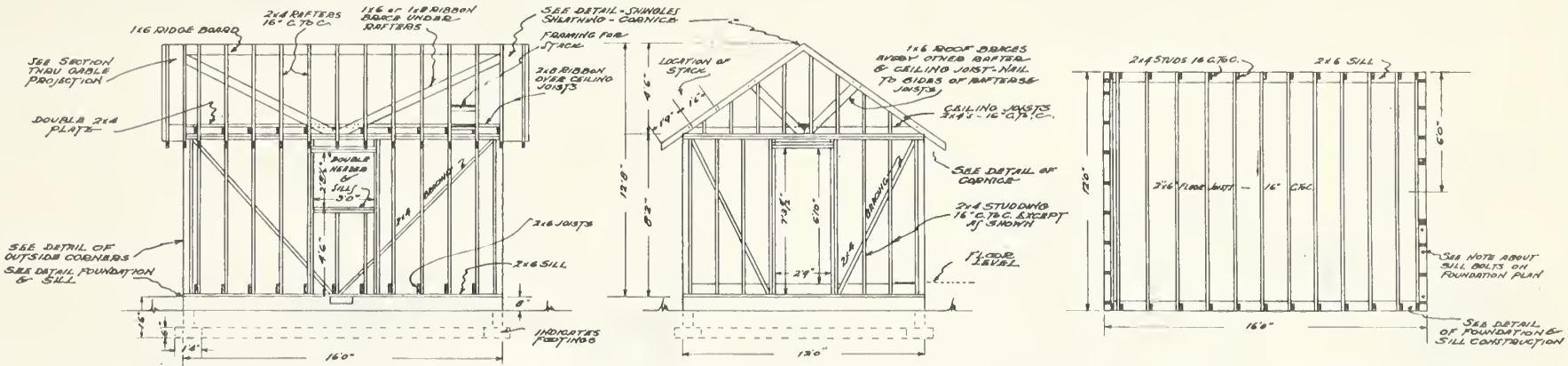
	DATE	SCALE
CHECKED O.L.N.	7-8-33	ELEVATION & PLAN ¼" = 1 FOOT
APPROVED C.N.W.	7.10.33	DETAIL AT SHOWN



- SIDE ELEVATION -
- BOTH SIDES ALIKE -

- END ELEVATION -

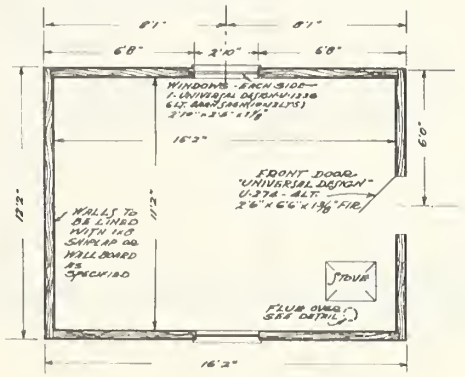
- END ELEVATION -



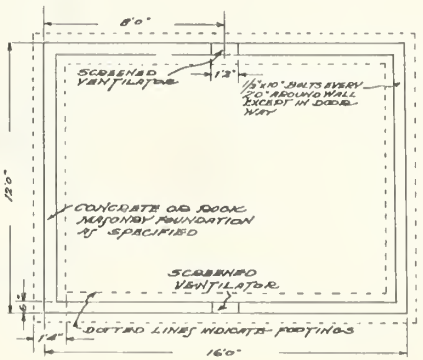
- FRAMING SIDE ELEVATION -

- FRAMING - END ELEVATION -

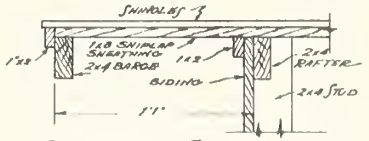
- FLOOR FRAMING -



- FLOOR PLAN -



- FOUNDATION PLAN -



- SECTION THRU GABLE PROJECTION -
- SCALE 2" = 1FT. -

FOREST SERVICE

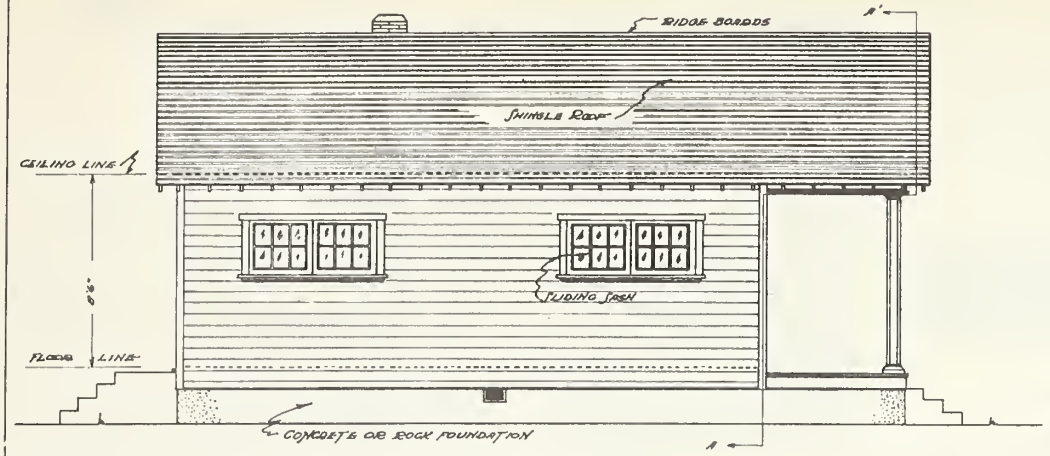
DWELLING - GUARD STATION

ONE ROOM - NO PORCH

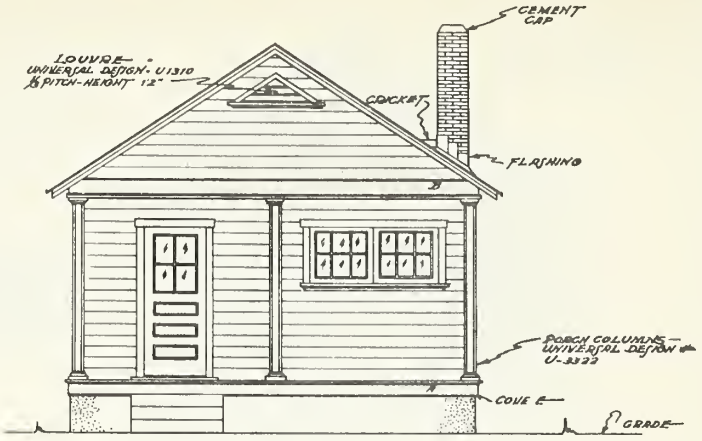
PLAN R-4 # 6

SHEET 1 OF

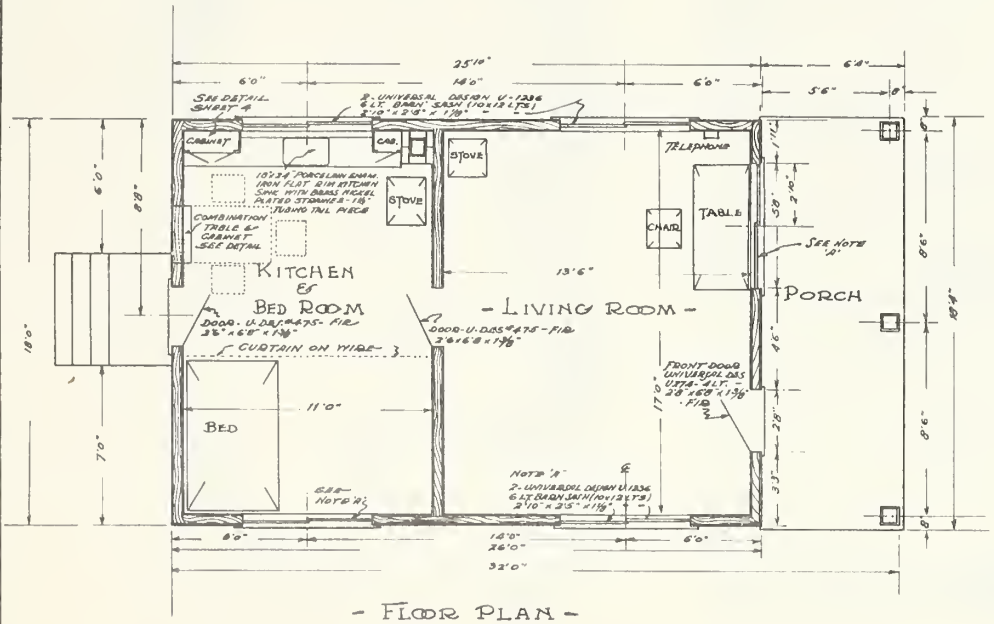
	DATE	SCALE
CHECKED GLW	7-15-33	ELEVATIONS & PLANS 1/4" = 1 FOOT
APPROVED E.W.W.	7-16-33	DETAILS AS SHOWN



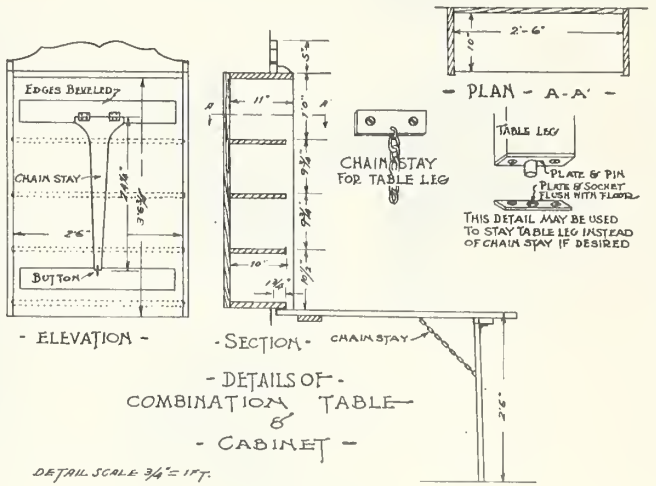
- SIDE ELEVATION -



- FRONT ELEVATION -



- FLOOR PLAN -



- ELEVATION - - SECTION - - PLAN - A-A' -

- DETAILS OF - COMBINATION TABLE & - CABINET -

DETAIL SCALE 3/4" = 1 FT.

FOREST SERVICE

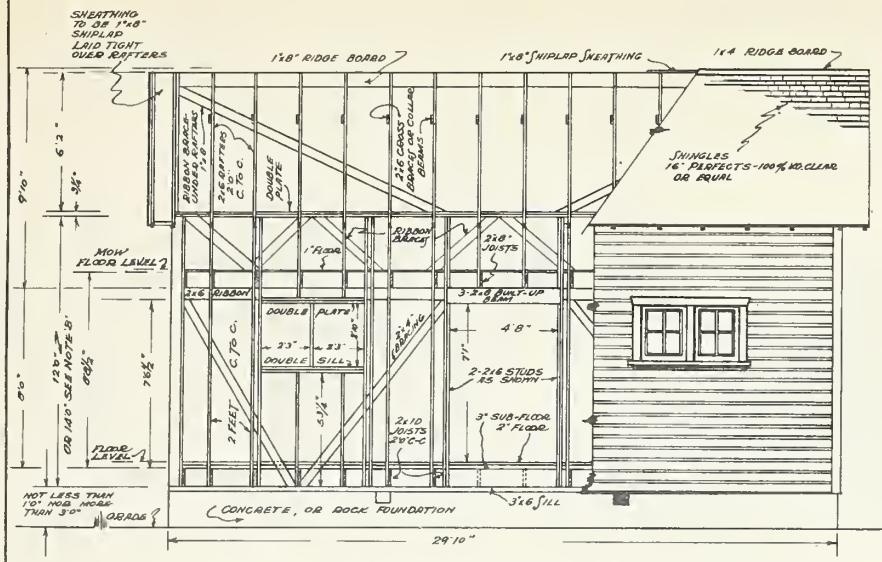
DWELLING - GUARD STATION

TWO ROOMS

PLAN R-4 # 7

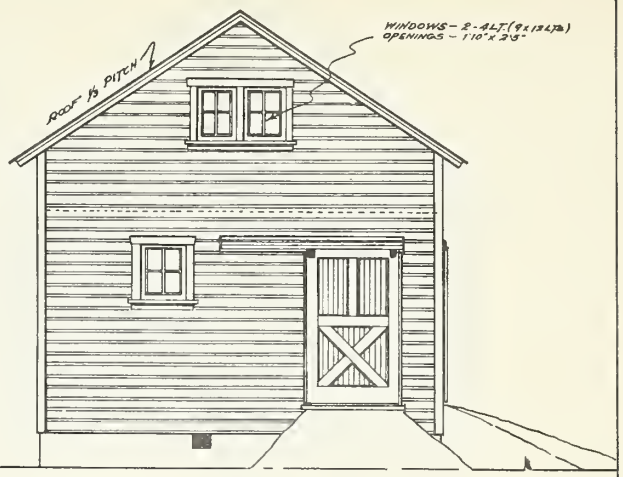
SHEET 1 OF

	DATE	SCALE
CHECKED G.L.N.	2-25-39	ELEVATIONS & PLAN 1/4" = 1 FOOT - DETAIL AS SHOWN -
APPROVED C. N.W.	3.10.39	



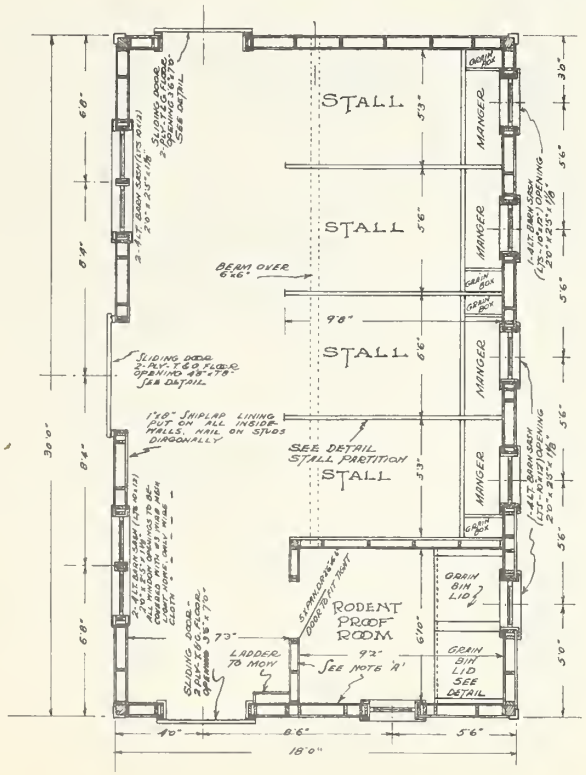
- FRONT ELEVATION - SHOWING FRAMING -

NOTE "B" WHERE MORE HAY STORAGE IS NEEDED - USE 14'0" STUDS INSTEAD OF 12'0". THIS WILL INCREASE STORAGE BY APPROXIMATELY TWO TONS. BUILDING DESIGN AS SHOWN PROVIDES AMPLY FOR 4 TON.

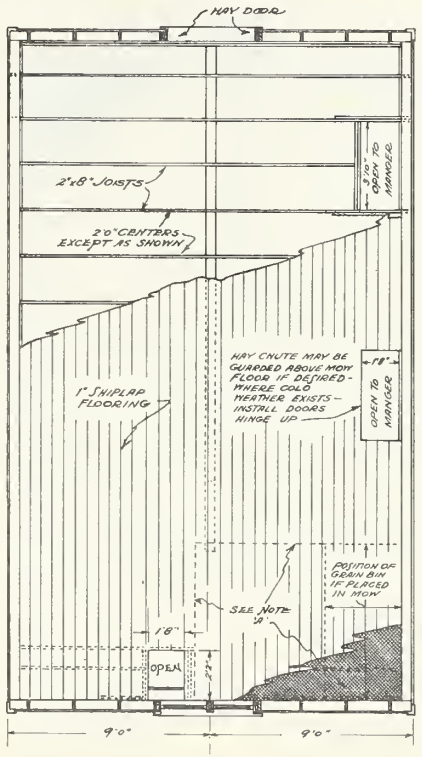


- END ELEVATION -

END ELEV. SHOWN ABOVE INDICATES A REVERSED PLAN - THIS MAY BE DESIRABLE IN SOME GROUPS TO GAIN UTMOST ADVANTAGE OF SUNLIGHT - - - -

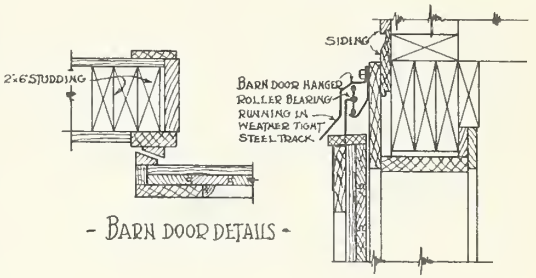


- - FLOOR PLAN -

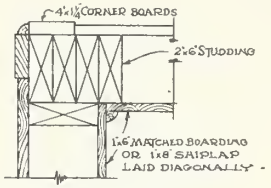


- MOW PLAN -

NOTE 'A'
THIS ROOM IS TO BE PROTECTED UNDER ALL INSIDE WALL COVERING - ALSO OVER FLOOR JOISTS AND UNDER FLOOR - ALSO OVER CEILING JOISTS AND UNDER MOW FLOOR WITH GALV. DOUBLE SELV. 12 MESH SCREEN WIRE CLOTH -



- BARN DOOR DETAILS -



CORNER POST DETAILS

- SCALE - 1½" = 1FT -

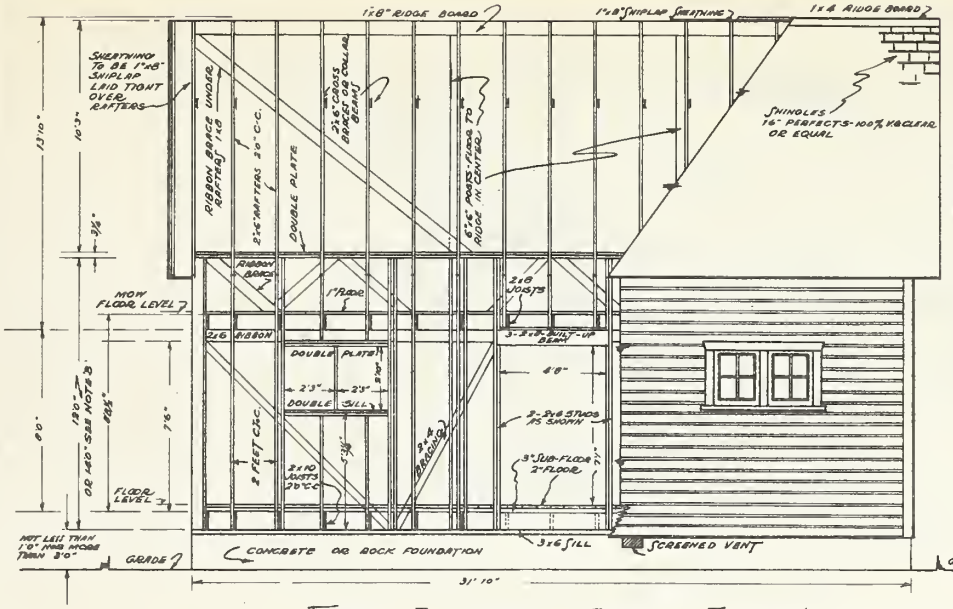
FOREST SERVICE

FOUR HORSE BARN

PLAN R-4 #11

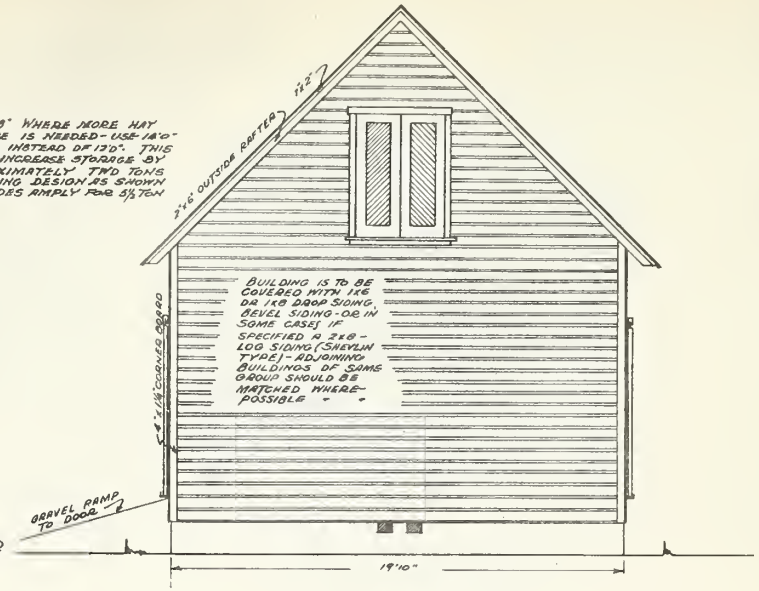
SHEET 1 OF

CHECKED B.L.N.	DATE 7-9-33	SCALE 1/8" = 1 FOOT EXCEPT AS SHOWN
APPROVED C.W.W.	7-10-33	

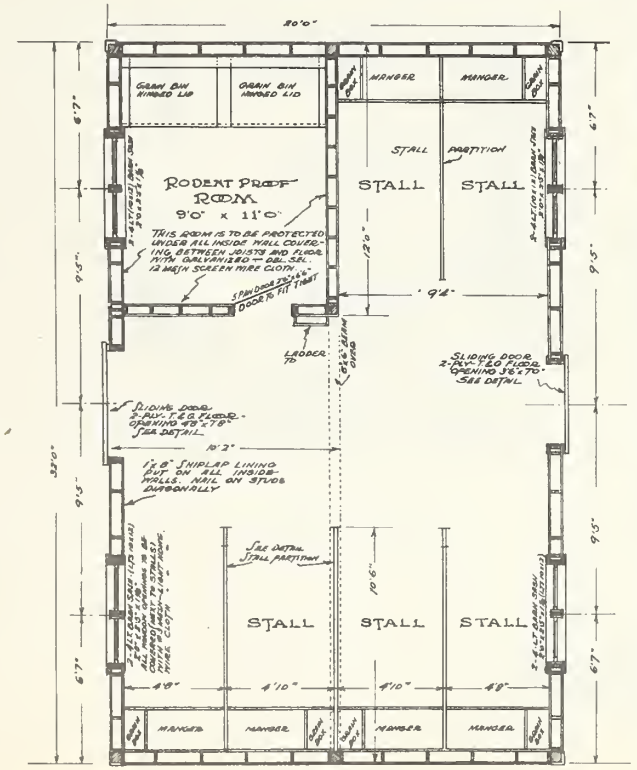


- FRONT ELEVATION - SHOWING FRAMING -

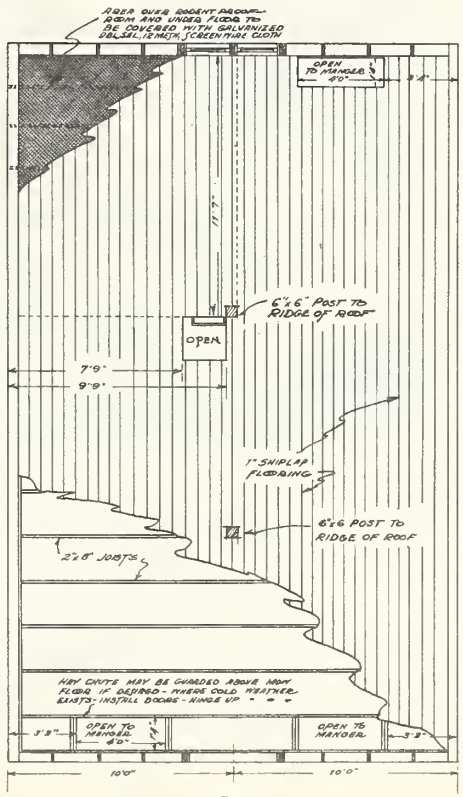
NOTE "B" WHERE MORE HAY STORAGE IS NEEDED - USE 18'-0" STUDS INSTEAD OF 12'-0". THIS WILL INCREASE STORAGE BY APPROXIMATELY TWO TONS BUILDING DESIGNED AS SHOWN PROVIDES AMPLY FOR 5½ TON



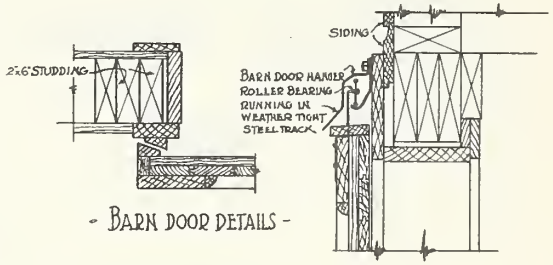
- END ELEVATION -



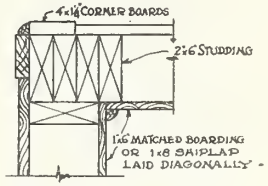
- FLOOR PLAN -



- MOW PLAN -



- BARN DOOR DETAILS -



CORNER POST DETAILS

- SCALE 1½" = 1FT -

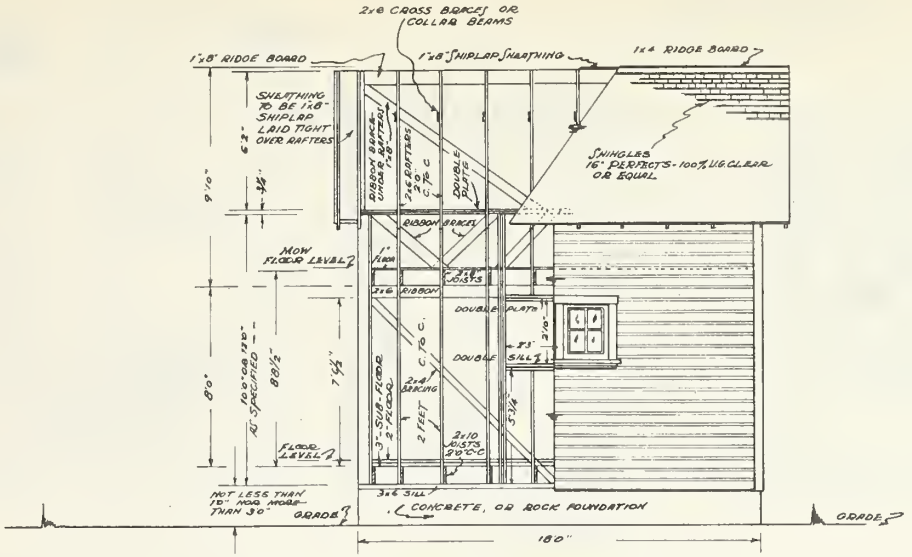
FOREST SERVICE

SIX HORSE BARN

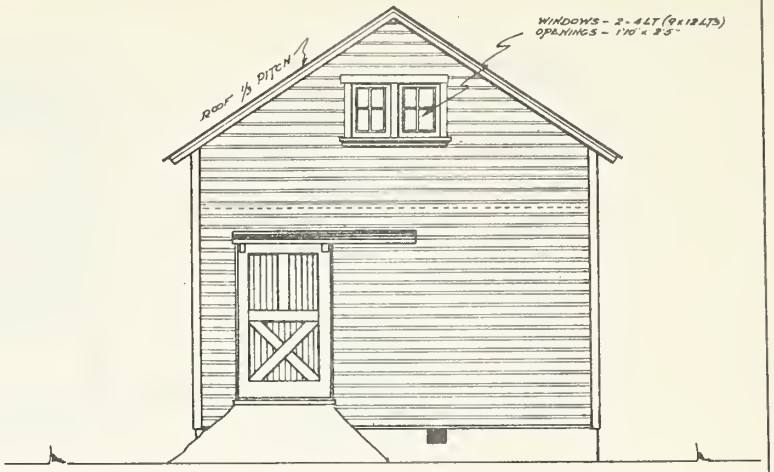
PLAN R-4 # 12

SHEET 1 OF

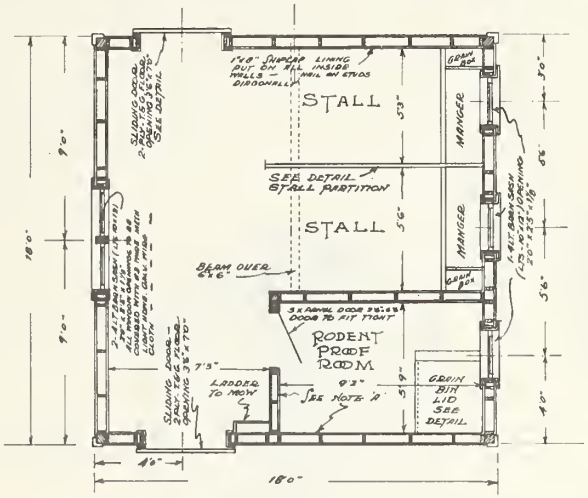
	DATE	SCALE
CHECKED O.L.N.	8-9-33	¼" = 1 FOOT
APPROVED C.N.W.	8-10-33	EXCEPT AS SHOWN



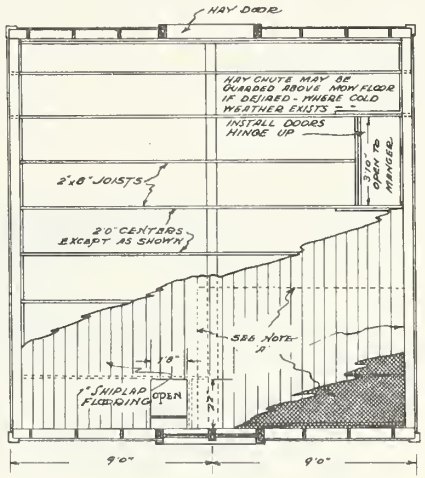
- FRONT ELEVATION - SHOWING FRAMING -



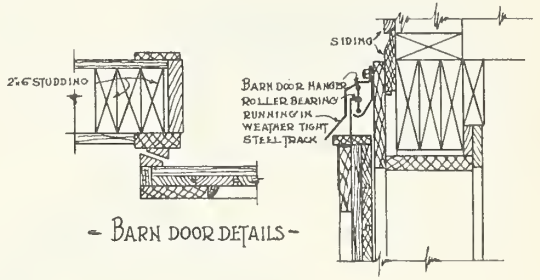
- END ELEVATION -



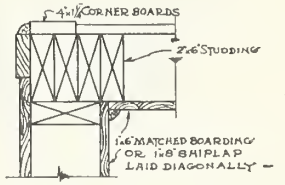
- FLOOR PLAN -



- MOW PLAN -



- BARN DOOR DETAILS -



- CORNER POST DETAILS -

- SCALE 1½" = 1FT -

NOTE-'A'
THIS ROOM IS TO BE PROTECTED UNDER ALL INSIDE WALL SHEATHING - ALSO OVER FLOOR JOISTS AND UNDER FLOOR - ALSO OVER CEILING JOISTS AND UNDER MOW FLOOR WITH GALV. DOUBLE GALV. 12 MESH SCREEN WIRE CLOTH -

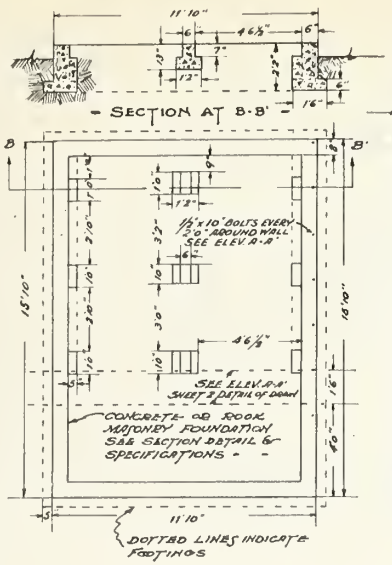
FOREST SERVICE

TWO HORSE BARN

PLAN R-4 # 13 TYPE A

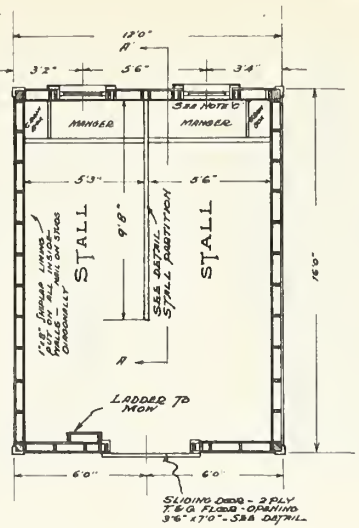
SHEET 1 OF

CHECKED G.L.N	DATE 2-13-33	SCALE
APPROVED C.N.W.	3-10-33	SCALE 1½" = 1FT EXCEPT AS SHOWN

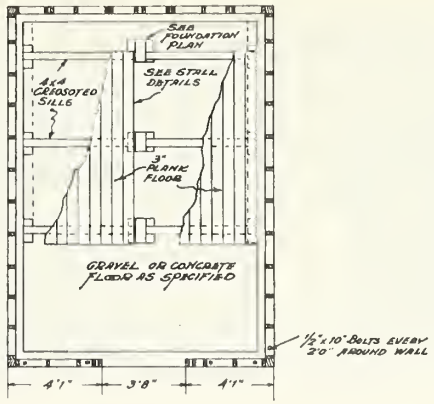


- FOUNDATION PLAN -

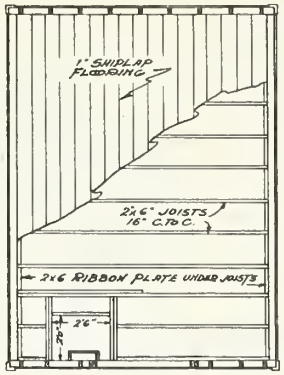
Note C: WINDOWS - EACH 1-4 LT BARN SASH (LT'S 10"x12") OPENING - 2'0" x 3'5" x 1⅛" - -



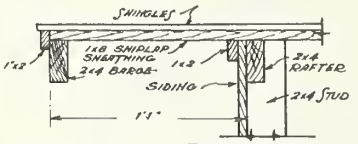
- FLOOR PLAN -



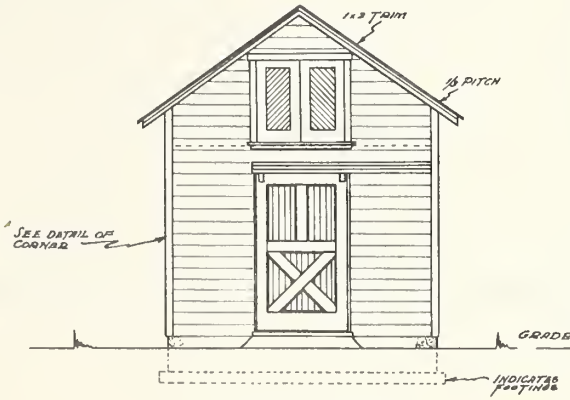
- FLOOR FRAMING -



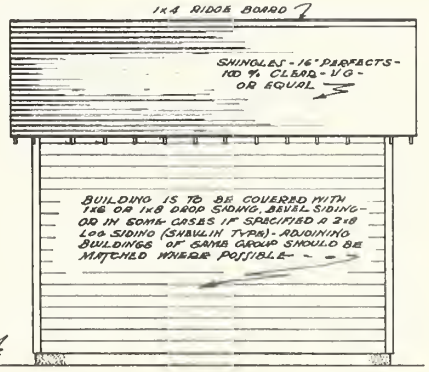
- MOW PLAN -



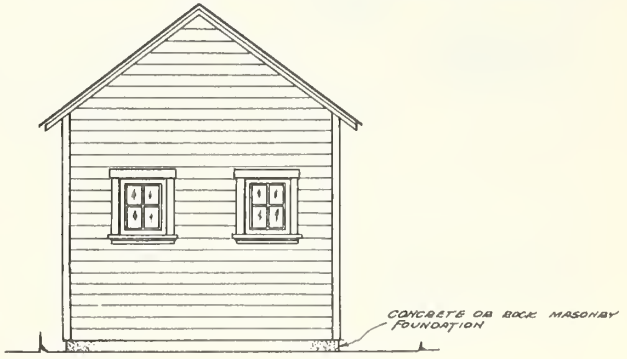
- Section thru Gable Projection -



END ELEVATION -



- SIDE ELEVATION -
- BOTH SIDES ALIKE -



- END ELEVATION - - -

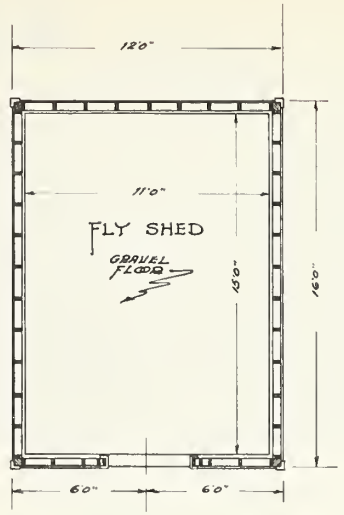
FOREST SERVICE

TWO HORSE BARN

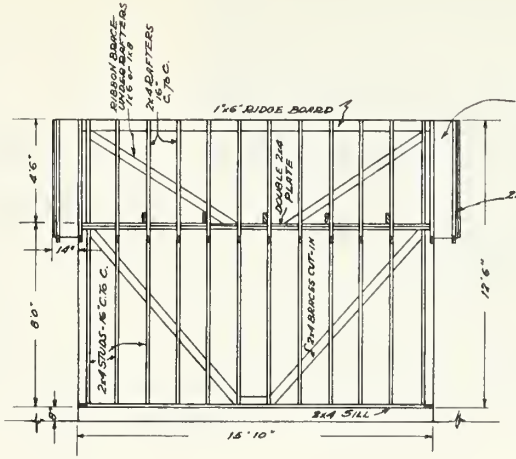
PLAN R-4 # 13 TYPE B

SHEET 1 OF 3

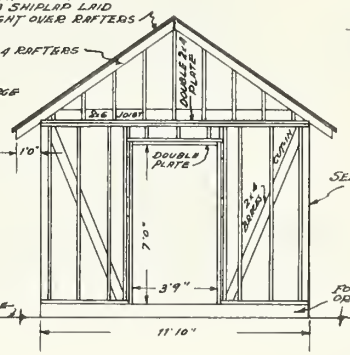
CHECKED G.A.N.	DATE 2-11-33	SCALE
APPROVED C.N.W.	3-10-33	ELEVATIONS & PLAN - ½" = 1 FOOT -



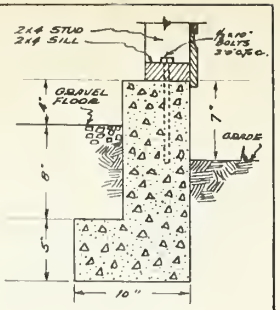
- FLOOR PLAN -



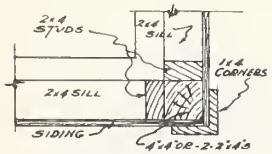
- FRAMING SIDE ELEVATION -



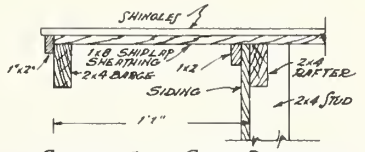
- END FRAMING -



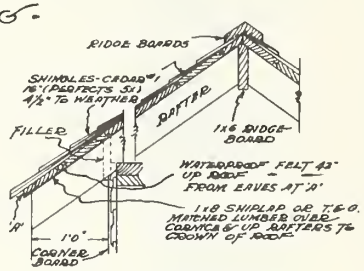
SECTION OF - FOUNDATION -



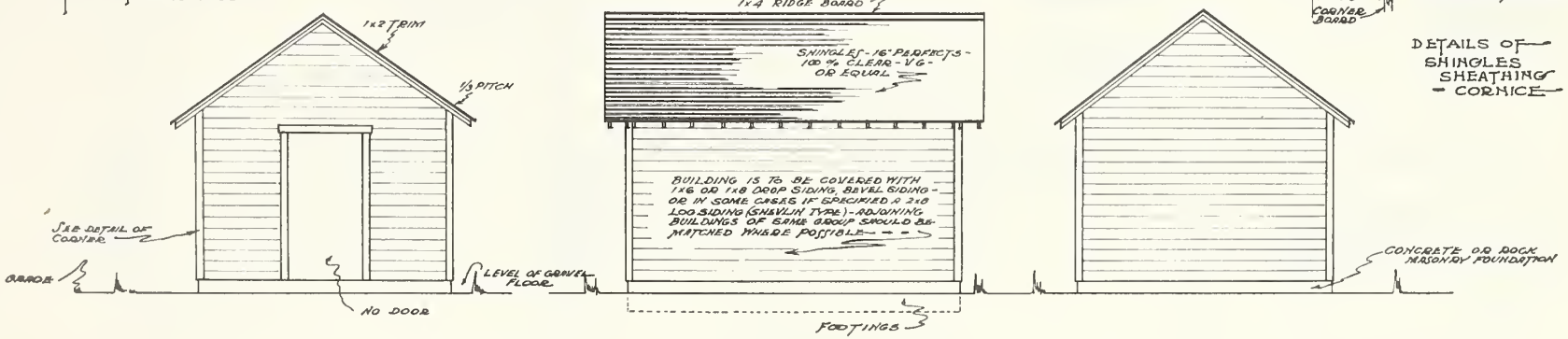
- DETAIL OF CORNER -



- SECTION THRU GABLE PROJECTION -



DETAILS OF SHINGLES SHEATHING - CORNICE -



- END ELEVATION -

- SIDE ELEVATION -
- BOTH SIDES ALIKE -

- END ELEVATION -

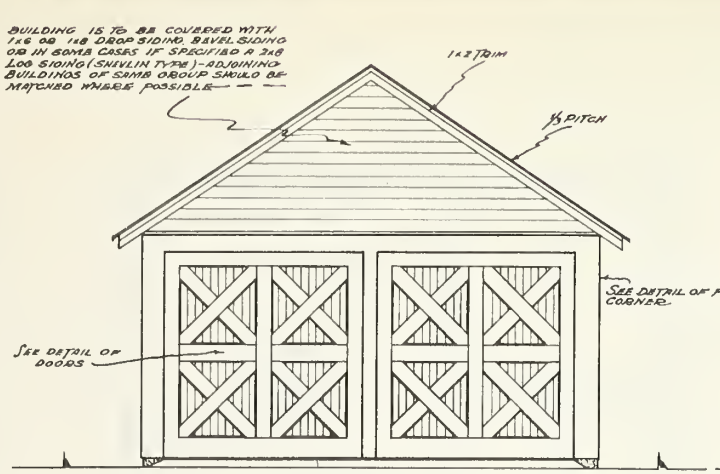
FOREST SERVICE

FLY SHED

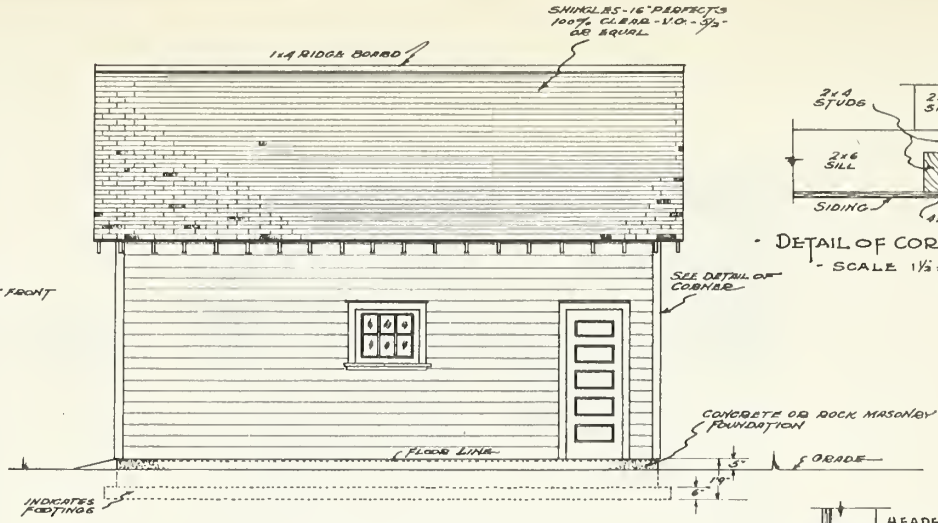
PLAN R-4 # 14

SHEET 1 OF 2

CHECKED G.L.N.	DATE 2-17-33	SCALE PLANS & ELEV. ½"=1'0" DETAILS AS SHOWN
APPROVED C.N.W.	3-10-33	

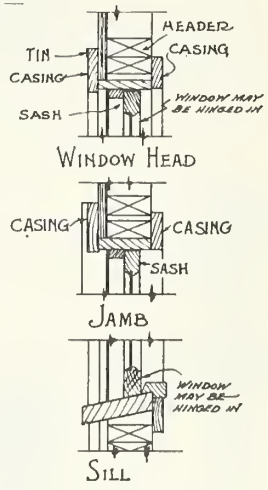


- FRONT ELEVATION -

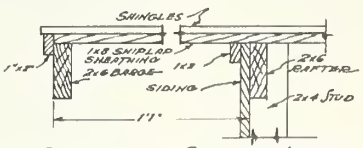


- SIDE ELEVATION -

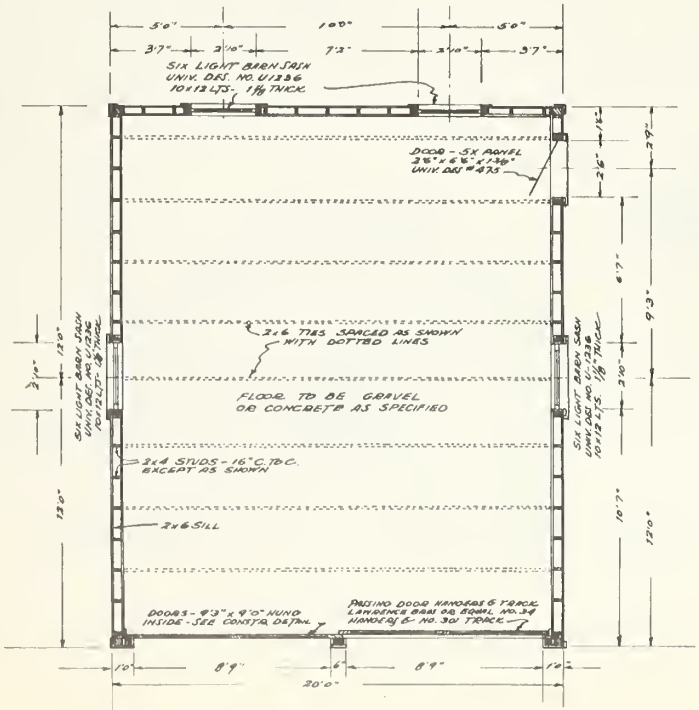
- DETAIL OF CORNER -
- SCALE 1½" = 1FT. -



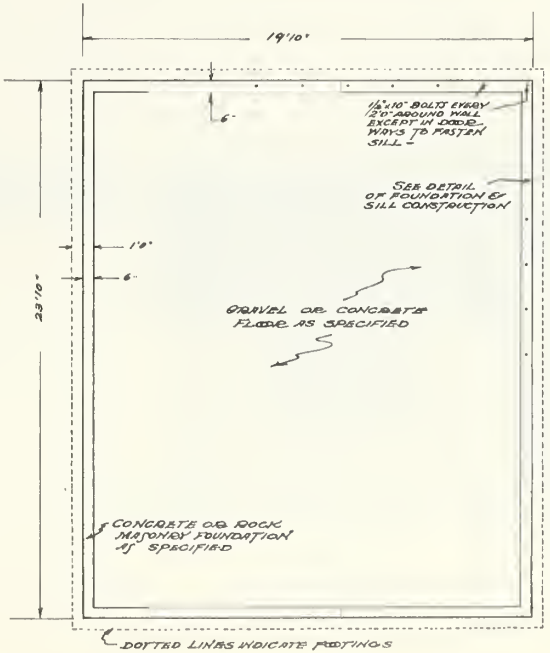
- WINDOW DETAIL -
- SCALE 1½" = 1FT -



- SECTION THRU GABLE PROJECTION -
- SCALE - 1½" = 1FT. -



- FLOOR PLAN -



- FOUNDATION PLAN -

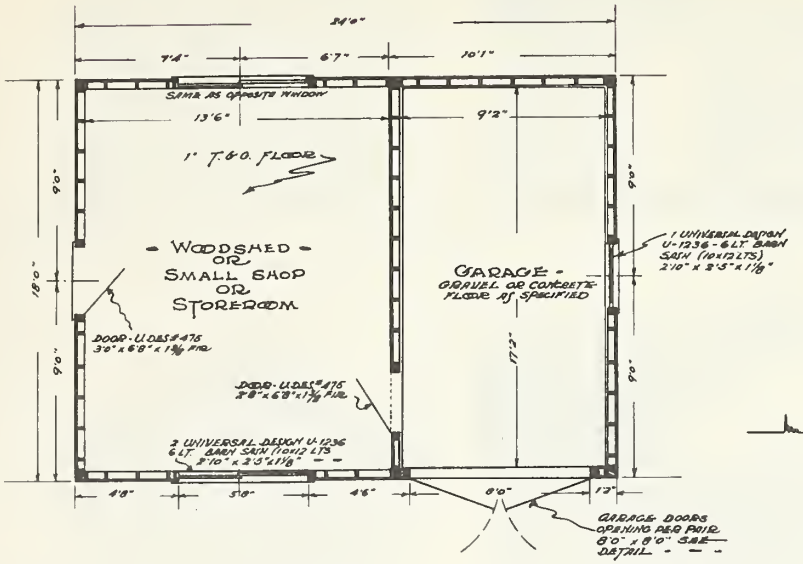
FOREST SERVICE

GARAGE
TWO CAR

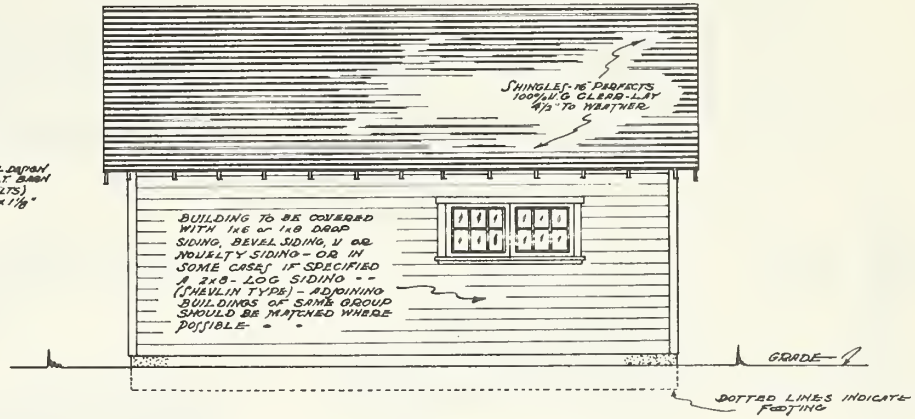
PLAN R-4 # 20

SHEET 1 OF

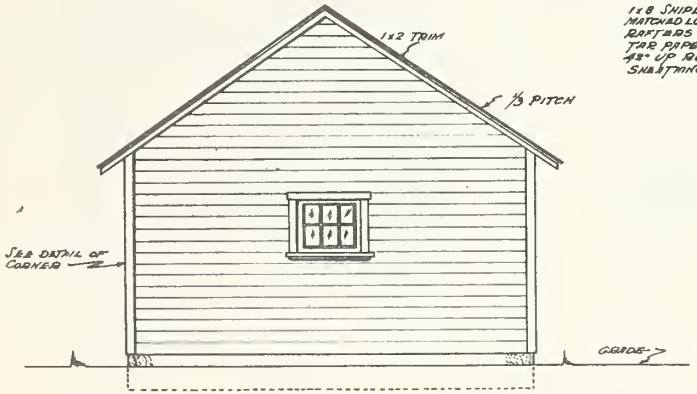
CHECKED G.L.N.	DATE 2-28-33	SCALE ELEVATIONS & PLANS ¼" = 1 FOOT DETAILS AS SHOWN
APPROVED C.N.W.	3-20-33	



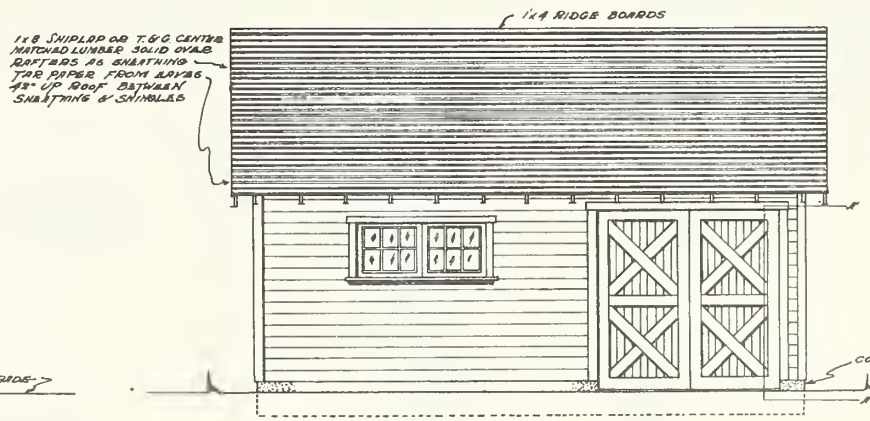
- PLAN -



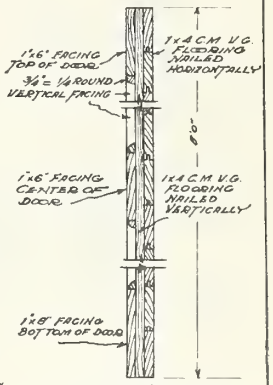
- REAR ELEVATION -



RIGHT END ELEVATION -



- FRONT ELEVATION -



- SECTION THRU DOOR AT A-A'

FOREST SERVICE

COMBINATION

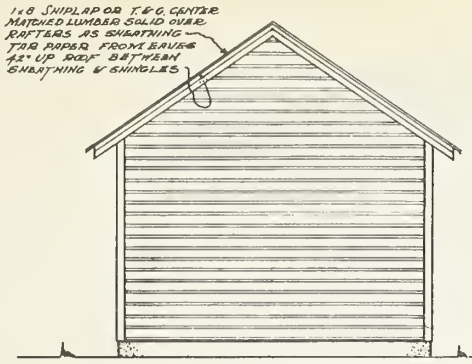
SINGLE CAR GARAGE AND WOODSHED

OR { SINGLE CAR GARAGE & SMALL SHOP / SINGLE CAR GARAGE & STOREROOM

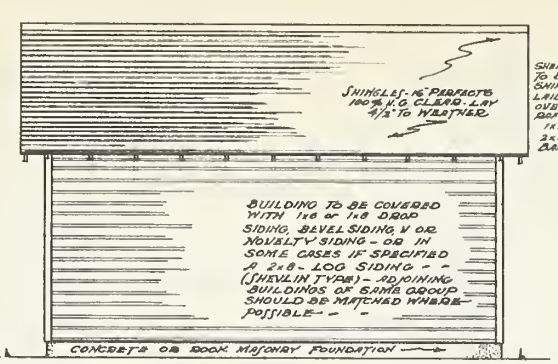
PLAN R-4 # - 23

SHEET 1 OF 3

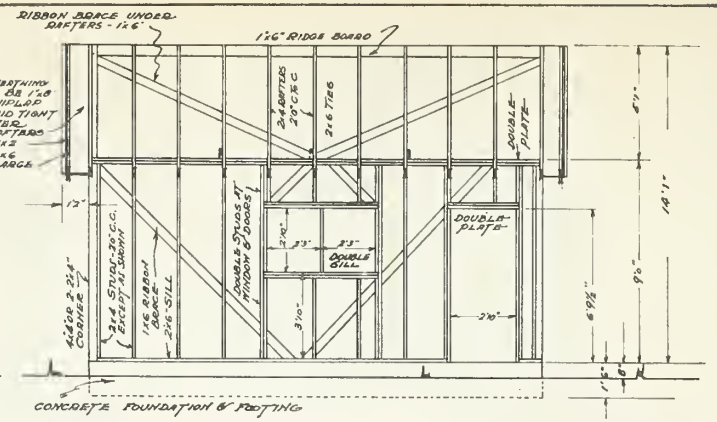
		DATE	SCALE
CHECKED	G.L.N.	2-9-33	ELEVATIONS & PLAN - 1/4" = 1 FOOT -
APPROVED	C.NW.	3-10-33	



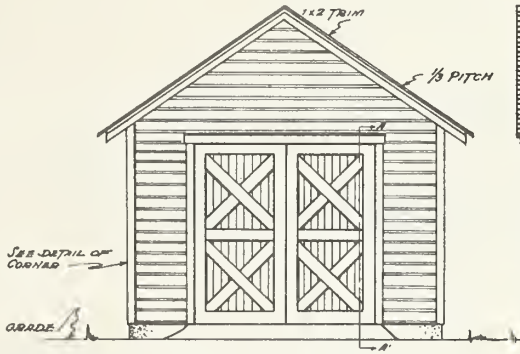
- BACK ELEVATION -



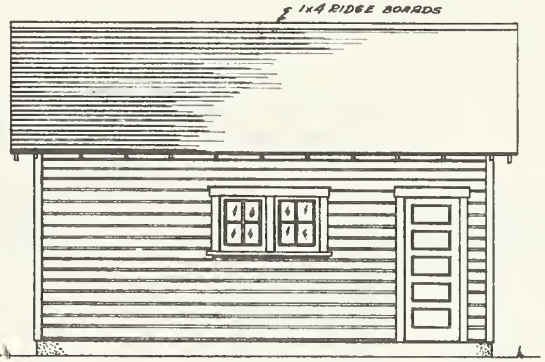
- SIDE ELEVATION -



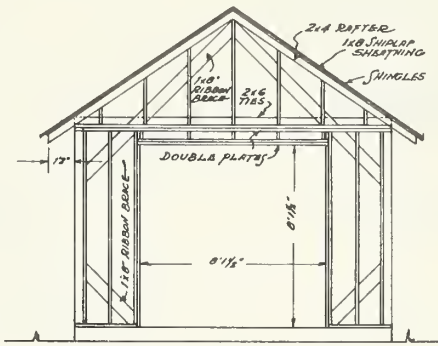
- FRAMING SIDE ELEVATION -



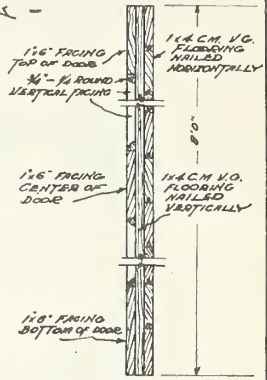
- FRONT ELEVATION -



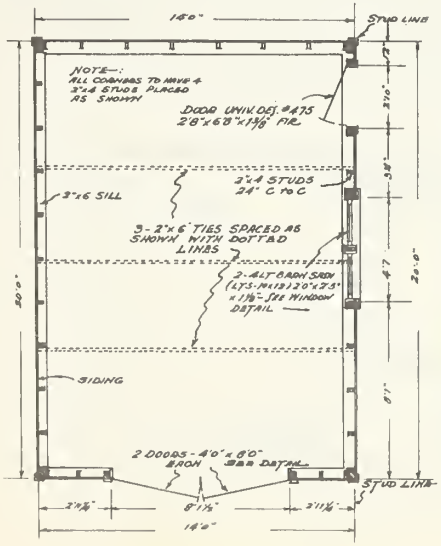
- SIDE ELEVATION -



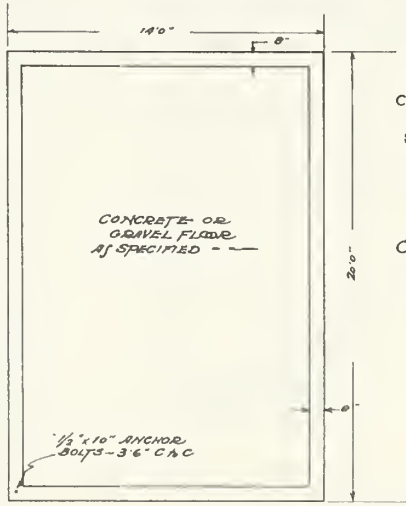
- FRAMING FRONT ELEVATION -



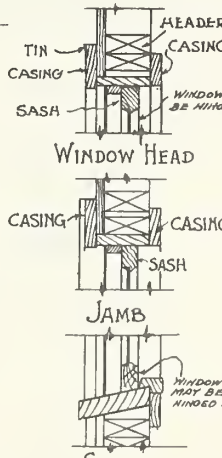
SECTION THRU DOOR AT A-A



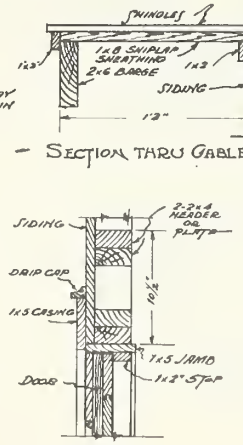
- FLOOR PLAN -



- FOUNDATION PLAN -

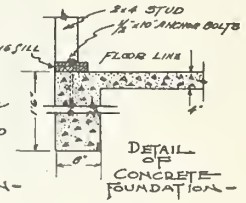


- WINDOW DETAIL -
- SCALE 1½" = 1 FT -

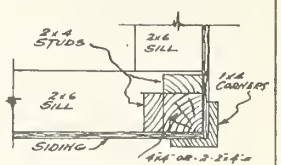


SECTION THRU - DOOR HEAD -

- SECTION THRU GABLE PROJECTION -



DETAIL OF CONCRETE FOUNDATION -



- DETAIL OF CORNER -

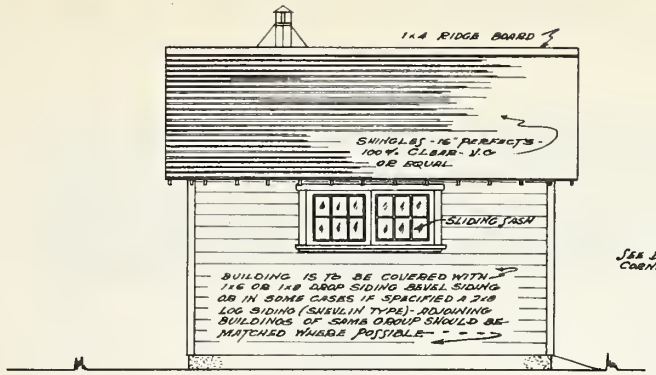
FOREST SERVICE

SINGLE CAR GARAGE

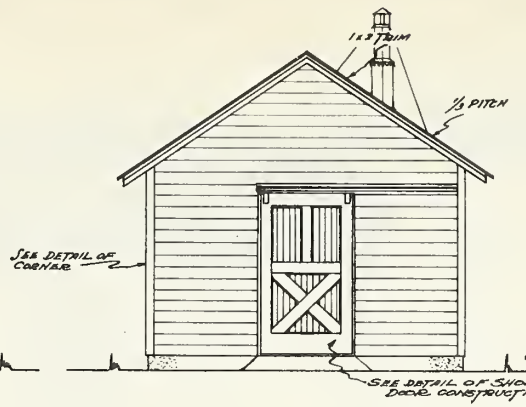
PLAN R-4 # 24

SHEET 1 OF 2

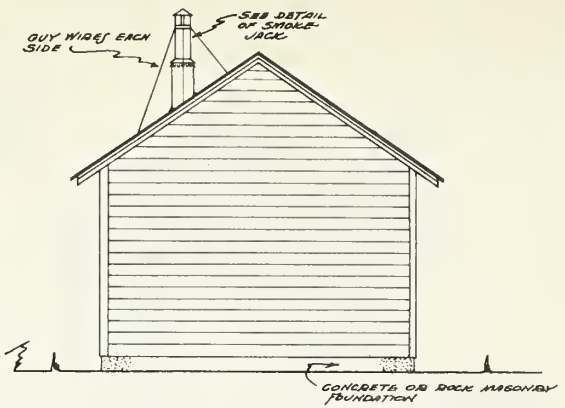
	DATE	SCALE
CHECKED ALN	2-7-23	PLANS & ELEV. 1½" = 1FT DETAILS AS SHOWN
APPROVED C.N.W.	3-16-23	



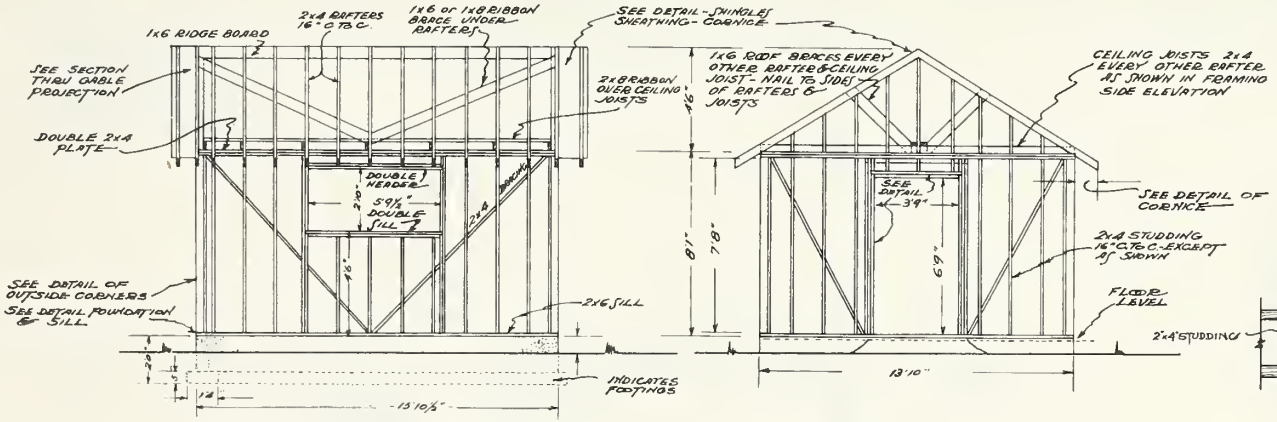
- SIDE ELEVATION -
- BOTH SIDES ALIKE -



- END ELEVATION -

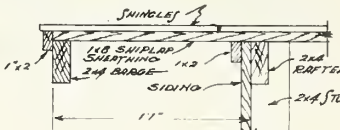


- END ELEVATION -

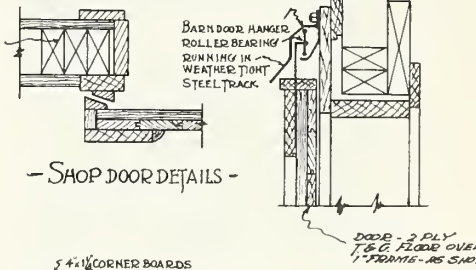


- FRAMING SIDE ELEVATION -

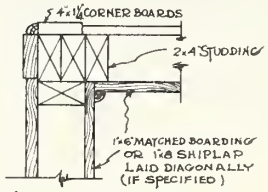
- FRAMING - END ELEVATION -



- SECTION THRU GABLE PROJECTION -
- SCALE - 2" = 1FT -

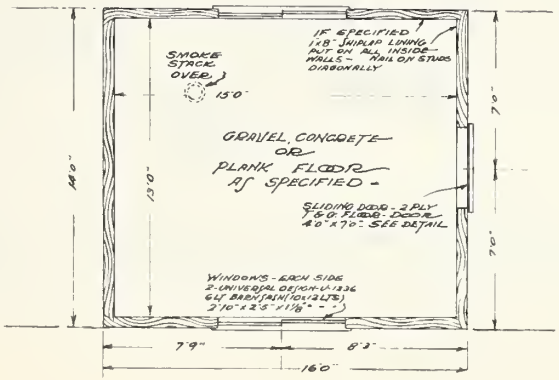


- SHOP DOOR DETAILS -

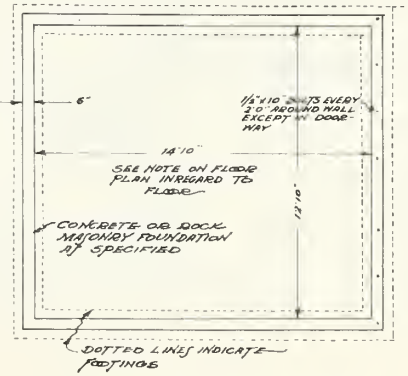


- CORNER POST DETAILS -

- SCALE 1 1/2" = 1FT -



- FLOOR PLAN -



- FOUNDATION PLAN -

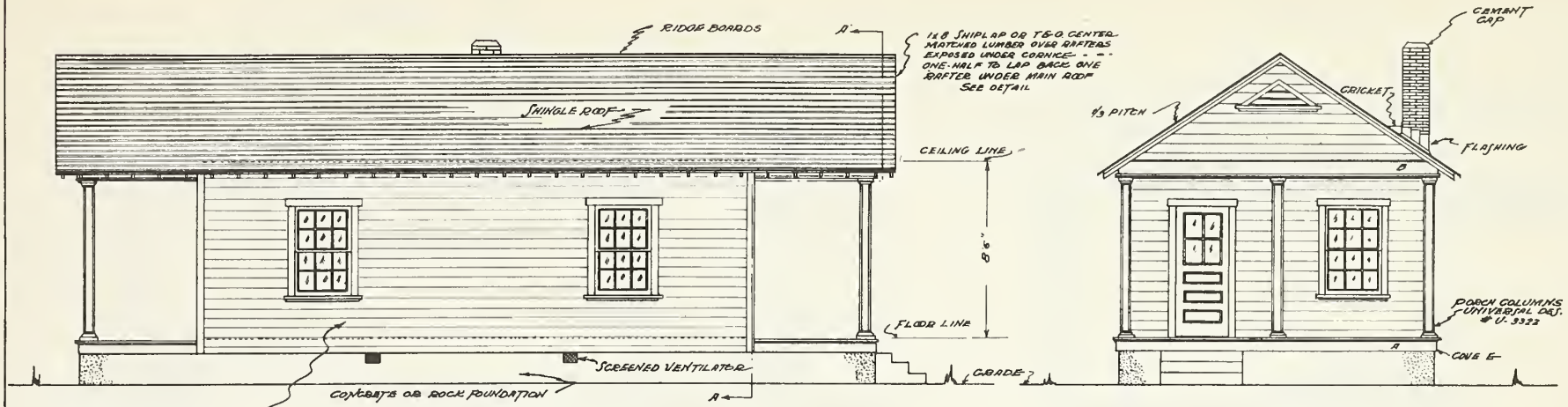
FOREST SERVICE

- BLACKSMITH SHOP -

PLAN R-4 * 40

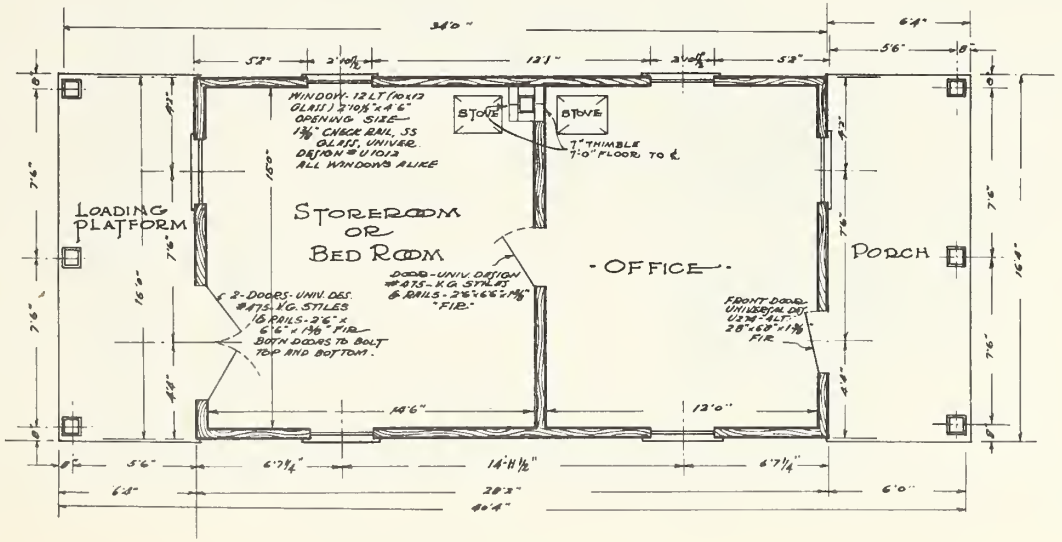
SHEET 1 OF

		DATE	SCALE
CHECKED	G.L.N	9-2-33	ELEVATIONS & PLANS - 1/4" = 1 FOOT
APPROVED	C.N.W	3-15-33	DETAILS AS SHOWN

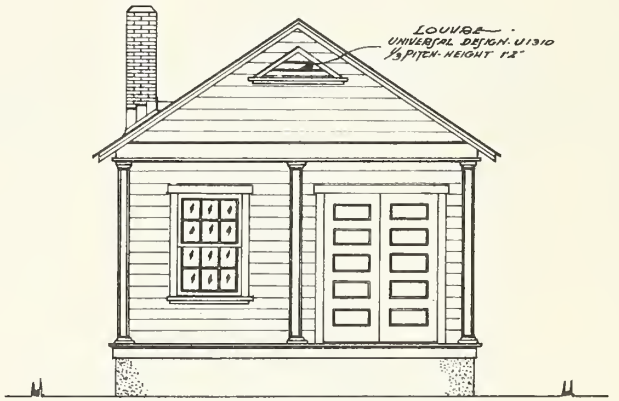


- SIDE ELEVATION -
- BOTH SIDES ALIKE -

- FRONT ELEVATION -



- FLOOR PLAN -



- REAR ELEVATION -

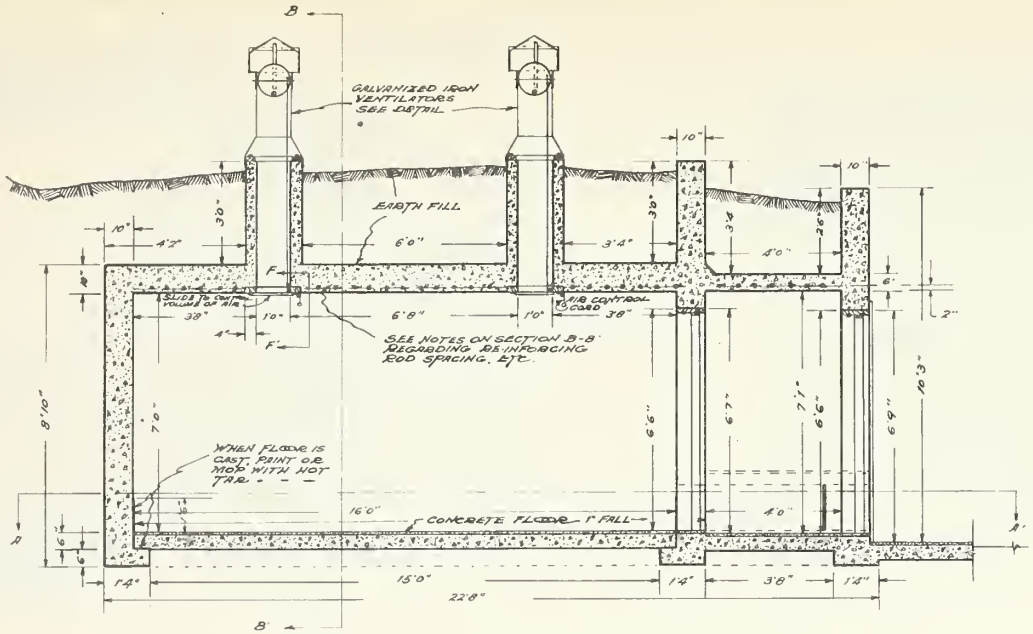
FOREST SERVICE

OFFICE & STOREROOM OR OFFICE & BEDROOM

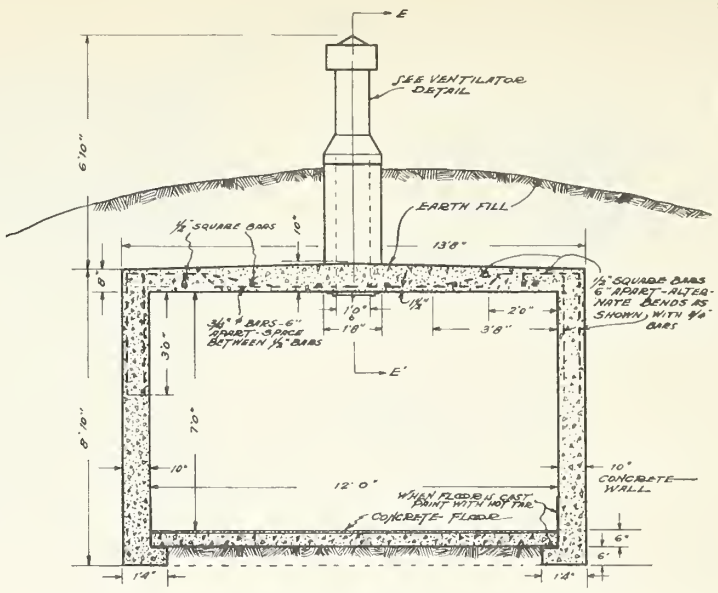
PLAN R-4 # 51

SHEET 1 OF

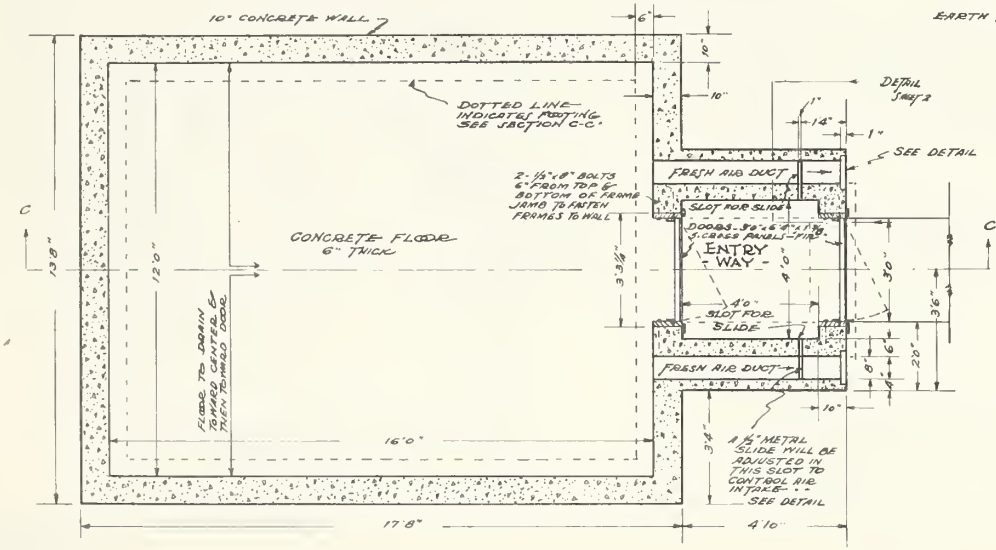
CHECKED G.L.N.	DATE 3-28-33	SCALE ELEVATIONS & PLAN - ⅛" = 1 FOOT. -
APPROVED C.N.W.	3-28-33	



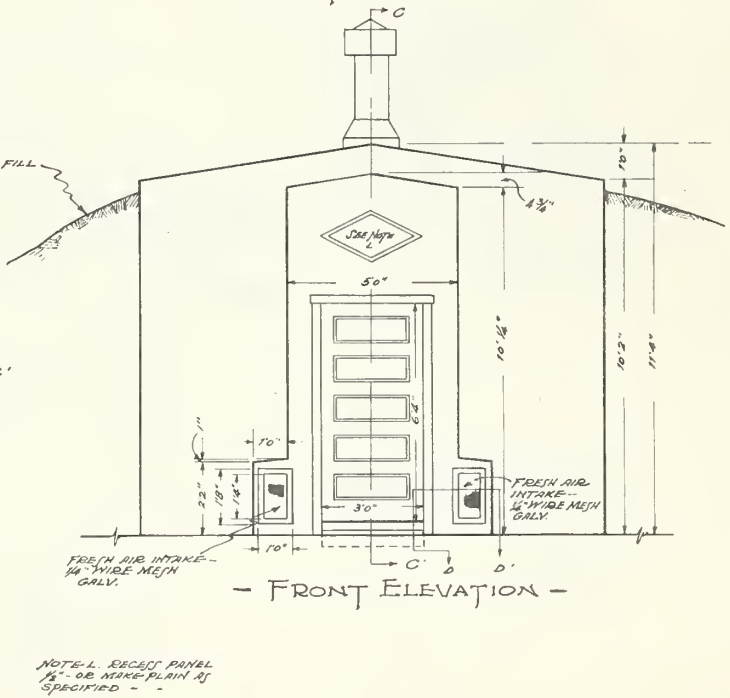
- SECTION C-C' -



- SECTION B-B' -



- SECTION A-A' -
& PLAN -



- FRONT ELEVATION -

NOTE-L. RECESS PANEL ½" - OR MAKE PLAIN AS SPECIFIED - -

FOREST SERVICE

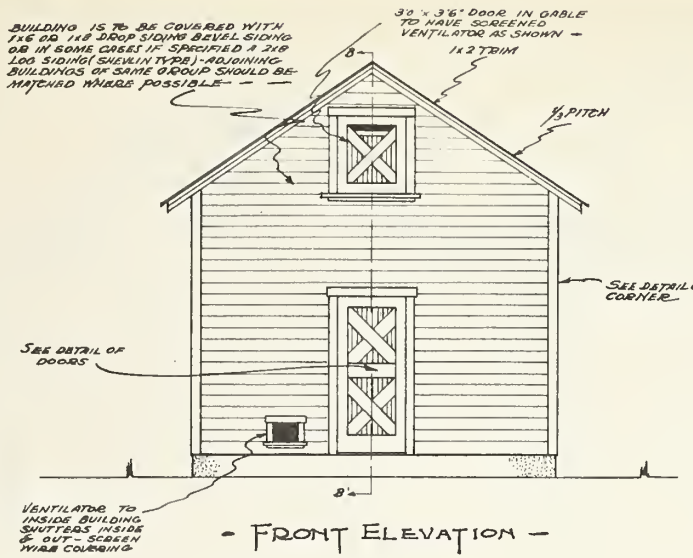
CELLAR

HILLSIDE

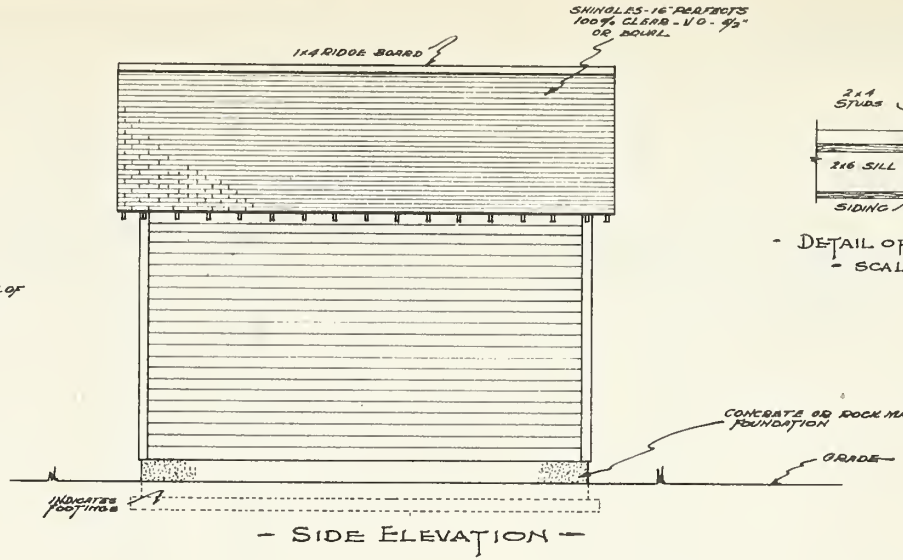
PLAN R-4 #62

SHEET 1 OF

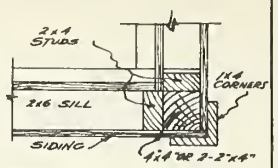
	DATE	SCALE
CHECKED G.L.N.	3-7-33	- ⅜" = 1 FOOT -
APPROVED C.N.W.	5-15-33	



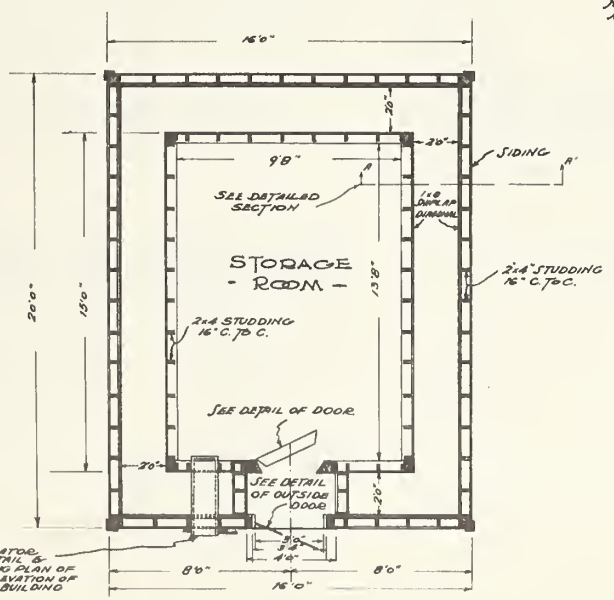
- FRONT ELEVATION -



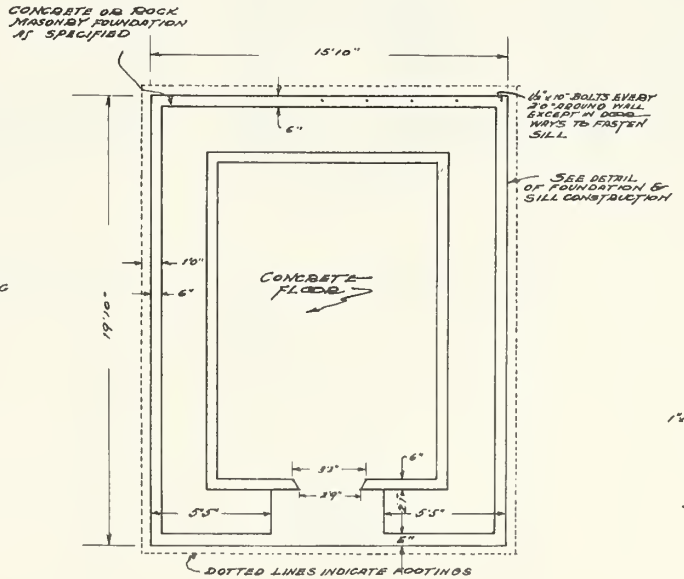
- SIDE ELEVATION -



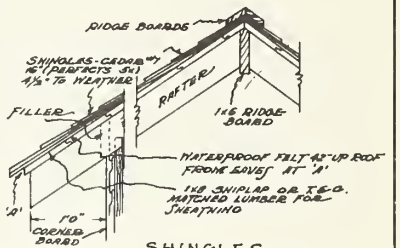
- DETAIL OF CORNER -
- SCALE 1½ = 1FT. -



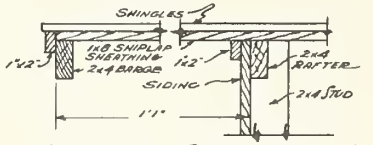
- FLOOR PLAN -



- FOUNDATION PLAN -



SHINGLES - SHEATHING - CORNICE -



- SECTION THRU GABLE PROJECTION -
- SCALE 2" = 1FT. -

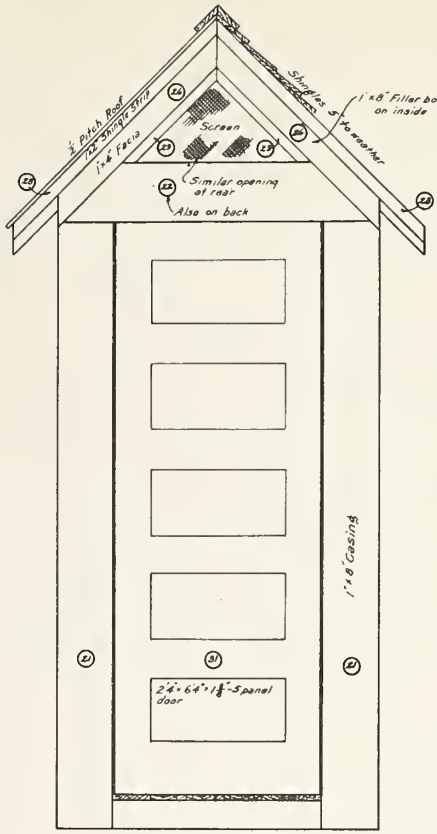
FOREST SERVICE

CELLAR
ABOVE GROUND
COLD STORAGE TYPE

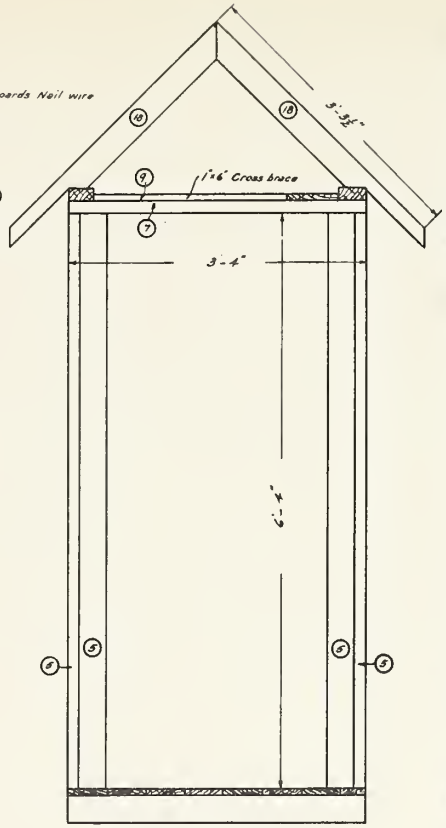
PLAN R-4 # 63

SHEET 1 OF

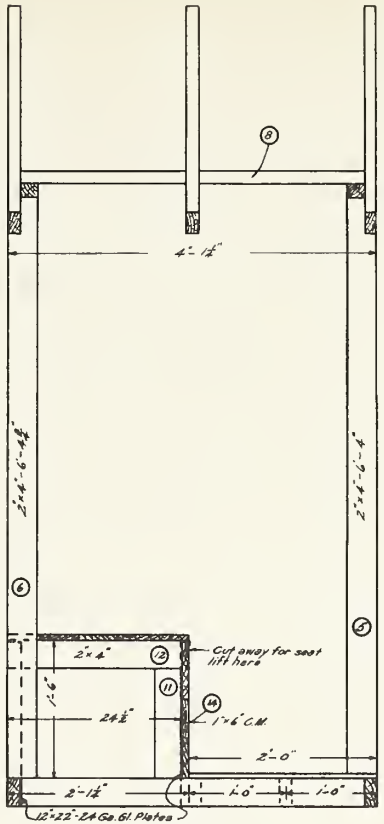
CHECKED O.L.N.	DATE 3-16-33	SCALE ELEVATIONS & PLANS 16" = 1 FOOT * DETAILS AS SHOWN.
APPROVED C.N.W.	3-25-33	



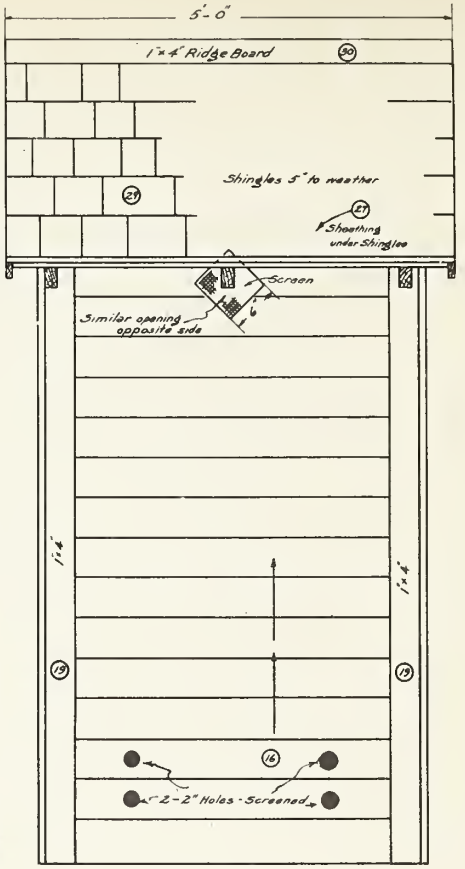
FRONT



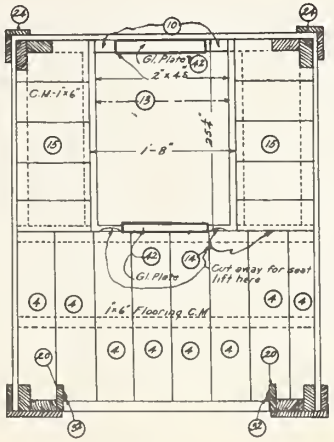
FRONT FRAMING



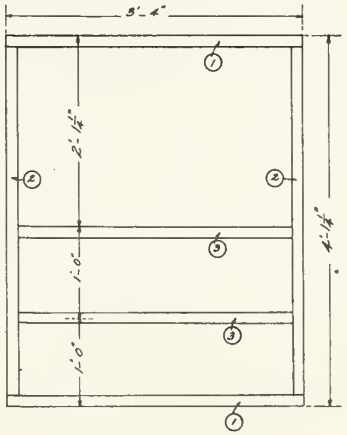
SIDE FRAMING



SIDE ELEVATION



FLOOR PLAN



FLOOR FRAMING

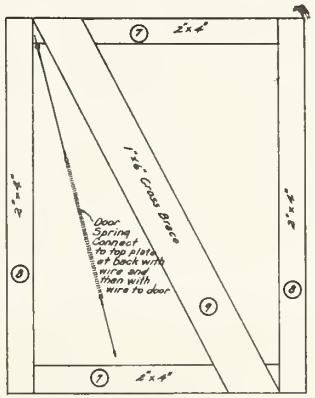


PLATE FRAMING

FOREST SERVICE

SINGLE UNIT LATRINE

PLAN R-4 # 70

Revised by R-4 From Plan R-1

SHEET 1 OF 3

	DATE	
CHECKED G.L.N.	4-5-38	SCALE: 1 IN. = 1 FOOT
APPROVED C.N.W.	3-10-38	